

Educational Psychology

In Two Volumes, Volume 2

*by Arthur I. Gates, Arthur T. Jersild,
T. R. McConnell and Robert C. Challman*



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Educational Psychology

CHAPTER XIII

The Development of Meanings

The story is told of a student who wrote on his examination paper, "The French Revolution wrote insulting letters to the American Revolution." He insisted, when questioned about this statement, that it was a paraphrase of what the teacher herself had said. Investigation revealed that the teacher had stated that "the French Revolution corresponded in a rough way with the American Revolution."¹ If the student had used the instructor's exact words, instead of paraphrasing them, he would not have revealed his misinterpretation. Neither teacher nor student would have been aware of mistaken meanings.

Much of what passes for learning in the classroom is really little more than empty verbalism — memorizing or paraphrasing verbal statements without understanding them. After an extensive review of the research on the meanings which children and even adults gain from their reading, Horn came to the conclusion that "the memorization of empty words and the complacent possession of flagrant misconceptions and vague ideas appear to be more nearly the rule than the exception."² Unfortunately, verbalism often characterizes the statements of teachers, as well as of pupils. The writer once listened to a conventional question and answer recitation in history which covered the organization of the federal reserve system. As long as the teacher and the pupils both used the language of the textbook, everything apparently went well. But when one member of the class asked what the Reconstruction Finance Corporation was, the

teacher replied that it was substantially the same as the Federal Reserve Bank. That comment was a rather clear indication that most of her statements about the federal reserve system had been sheer verbalism; she had not really understood what she or the book had said.

MEANING THE CENTRAL PROBLEM IN EDUCATIONAL PSYCHOLOGY

The Nature of Meaning. In spite of emphasis on learning through first-hand experiences in the community, and on supplementing verbal symbols with maps, models, charts, pictures, and other visual aids, language will continue to be the chief medium of instruction. The dependence of learning upon language is inevitable, because language is the means of conveying ideas and the vehicle of thought and understanding. Words are used to symbolize specific experiences or meanings; they also are means of expressing relationships in experience. Sentences serve the purpose of organizing words and their meanings in relation to one another. Words are also the means of *classifying* experiences, or labeling them in terms of their common characteristics. Verbal symbols are therefore instruments for dealing with highly *generalized ideas* in the thought process. These considerations make it clear that the *central problem* in education is how meanings or ideas develop in the course of learning and how we get meaning from spoken and written language.

We use the word "meaning" constantly in our ordinary conversation. We point to the sky and say, "These clouds *mean* rain." We indicate markings on the pavement, and explain that they *mean* that no passing is allowed. The teacher tells the child that the + sign *means* to add. The geologist explains that the formation of certain fossils *means* that they were once part of the ocean floor. More frequently, perhaps, we recognize meanings implicitly, and act accordingly. The child quickly learns to "sense" its father's mood from facial or postural signs. One of the early stages in learning to read is

to follow simple printed directions. The advanced student of a foreign language gets the meaning of spoken or written discourse directly, without the intermediate process of translation into the vernacular.

In spite of the fact that we use the term "meaning" so constantly, and that we obviously show in our behavior that symbols have meanings, the nature of meaning is still one of the most difficult and incompletely understood problems in psychology. But since the psychology of meaning is fundamental to the most important problems of learning and teaching, we must explain it as clearly — and as practically — as we can. What follows is an elementary, and necessarily incomplete and inadequate, exposition of what meanings are and how they are acquired.

Basic Meanings. The raw material out of which complex meanings are finally constructed is sense perception — the immediate awareness of the world about us (and the apprehension of our own movements). The child comes to distinguish objects or "figures" against a general background or "field" of undifferentiated experience. He becomes more and more aware of the detailed aspects of these objects — his perception is constantly refined by reacting to the figures. Likenesses and differences are discriminated; experience is enriched by noting the specific characteristics which things possess.

We identify objects, we attain definiteness in perception, by making adjustments to them. Perceiving is an active process. Dewey explains this significant principle in the following way:

The acquisition of definiteness and of consistency of meanings is derived primarily from practical activities. By rolling an object, the child makes its roundness appreciable, by bouncing it, he singles out its elasticity; by lifting it, he makes weight its conspicuous distinctive factor. Not through the senses, but by means of the reaction, the responsive adjustment, is an impression given a character marked off from qualities that call out unlike reactions.³

The characteristics of objects change as the child finds uses for them. Children often define words in terms of the uses to

which they may be put. For example, they may describe a chair as "something to sit on." The fact that the meaning of objects changes as our adjustments to them change emphasizes the importance of active rather than passive methods of education. The school should give the child an opportunity to explore, to handle, and to use for worth-while purposes, the tools, the materials, the concrete realities of his world. It is equally important to lay the foundation for social concepts in satisfying, wholesome, helpful, cooperative relationships with other persons. These social activities are as concrete and real as those which are concerned with things and their relationships.

The process of identifying objects, naming them, and noting their specific characteristics is often called the development of *primary or basic meanings*. This sort of learning goes on apace in childhood, but it extends throughout adulthood as well. If the demands upon us make it necessary or useful, we constantly make finer discriminations by noting details not previously perceived, or relationships not discovered before. Observation is improved by training. Thus a course in biology "opens one's eyes" to organisms and events he might otherwise never see. The student of botany notes characteristics of plants which the uninitiated would probably not distinguish. A checker in a manufacturing plant may detect faults in the product which an ordinary individual might entirely overlook. A psychiatrist may identify incipient symptoms of mental disorders which are unnoticed by laymen. This apprehension of our surroundings, this richness of experience, is exceedingly important in itself. But the objects it throws into sharp relief can serve another purpose in the development of meanings. They acquire a derived or symbolic meaning which is an important phase of the development of ideas.

Derived Meanings. With experience, objects acquire the function of representing or signifying other things and events. Derived or symbolic meanings arise when experience signifies more than is immediately perceived. What, then, is the mean-

ing of anything? Simply, what it represents, what it refers to or points to. When objects stand for other things, they become *symbols*. Man uses things constantly for this purpose —

All fashionable clothes . . . are highly symbolic materials, cut, and ornament are dictated only to a slight degree by considerations of warmth, comfort, or practicability . . . Again, we select our furniture to serve as visible symbols of our taste, wealth, and social position; we trade in perfectly good cars for later models, not always to get better transportation, but to give evidence to the community that we can afford such luxuries, we often choose our residential localities on the basis of a feeling that it “looks well” to have a “good address”. . . ⁴

Development of Word Meanings. Verbal symbols, of course, are the ones we use most frequently. This phase of meaning can be illustrated in the development of word meanings by young children. The first point to remember is that a word is itself an object. Words are definite stimulus situations, in spoken or in written form, to which the individual reacts just as he responds to other events or conditions in his environment. The child may repeat words, parrotlike, without using them in representative fashion. But when he hears other persons use a word in direct connection with an object or event, it soon acquires a representative function. Saying “doll” to a child as one hands him the object helps him to establish the belonging between the verbal object and the doll itself. The verbal reaction or the verbal stimulus finally acquires the character of a symbol. It signifies, or represents, the real thing. Ultimately, the child learns to use or interpret words to symbolize objects, situations, or relationships which are really absent at the time. Furthermore, the use of these word symbols enables him to *think about* things which are not present to sense, and to communicate these meanings to other persons.

Meaning in Reading. Learning activities in the early stages of reading illustrate the process of developing word meanings by using verbal symbols in connection with actual experiences, and later using words to represent these expe-

riences. The background for reading is often an excursion, let us say, to a grocery store, a zoo, or boat. As the children explore, watch what the clerks, animals, or sailors do, or actually perform some operations themselves, the teacher is careful to use words that characterize these experiences. The pupils, too, are encouraged to use the same words — to verbalize their experiences while they are enjoying them. Back in the classroom, the children and the teacher talk over their recent experiences. They use the words they heard and spoke “on location.” But now the concrete situation is absent. The words fulfill a representative function — they signify what the children saw and heard and did on the excursion. As the discussion proceeds, the teacher may write on the blackboard a series of sentences describing their experiences. This becomes the content of a *meaningful* reading project. What meaning do the pupils get when they read these statements? Just what the symbols stand for — their experiences in the store, or the zoo, or the boat. In a very real sense, they do not get meaning *from* the printed material, but *take meaning to it*.

DIFFICULTIES IN THE COURSE OF DEVELOPING MEANINGS

Meaning Depends on Experience. This illustration suggests a fundamental general principle: *words mean only what they represent in our experience*. Poverty of ideas is therefore associated with meagerness of contact with the world of things and persons. Horn, who probably has made the most careful analysis of the problem of meaning in the social studies, points out that “language stimulates and guides the formation of ideas rather than imparts them . . . we do not give the student meanings; we merely stimulate him to construct them for himself.”⁵ These ideas, he emphasizes, the student must build for himself out of the materials of his experience:

For the words of the printed page, as has been pointed out, are wholly symbolic. Only insofar as they are related to the experience

of the reader can they either convey correct ideas or stimulate their construction. Unless so related, even statements of the simplest and most concrete matters are unintelligible. "To him that hath shall be given" For example, the sentence, "He lost his way in a blizzard," must of necessity have limited meaning for one who has spent his whole life in Florida. When the words or statements in the text are familiar to the reader and stand for ideas he has previously evolved from his experience, the recall of these ideas is relatively easy. Frequently, however, the reader has neither formulated the idea for which the words stand nor experienced the elements out of which it may be built ⁶

To emphasize his point, Horn asks what an elementary school child who had always lived on treeless plains could possibly understand from the following statement: "On the seaward side of the mountains of Australia are dense hardwood forests. Among the most valuable trees are the eucalyptus, sometimes known as gum trees." This sentence abounds in symbols which such a pupil could not even vaguely, perhaps, understand. A child who had always lived in lush, rolling, partly wooded farming country would probably get incomplete and perhaps inaccurate meanings out of a verbal description of the dust bowl. Properly organized words, supplemented by pictures, sound effects, graphs, dramatizations, and other devices often do convey with reasonable fidelity ideas that the pupil has not experienced directly. Getting meanings vicariously is probably a matter of degree. In some instances, the ideas will be fairly complete and accurate; in other instances they may be sketchy and fuzzy. In any event, it is important for teachers to recognize the difficulty with which we obtain satisfactory meanings from verbal statements without relevant concrete experience.

Difficulties in Understanding Abstractions. When language represents very concrete things or events, it is difficult enough to understand it; when it is used to express generalized or abstract ideas, the problem of obtaining adequate meanings is even more severe. Textbooks at all levels abound in general concepts and expressions of abstract relationships. This is

not only true of subjects like science and mathematics, but is characteristic of the social studies as well. Small wonder that, under these conditions, the child often finds it necessary to resort to empty memorization of words. It is not surprising that a study of high school students' meanings of historical vocabulary uncovered such confusions as the following: conservative with conservation, rebate with debate, precedent with president, premier with ambassador, insurrection with rebellion, legislation with legislature, appropriation with donation, precedent with preceding. Students wrote such sentences as the following: "The precedent president before Roosevelt was Hoover." "A budget is a very useful instrument in the kitchen." "All conservatives are radicals and should be jailed."⁷ Another investigation of the comprehension of American history by eighth grade students yielded the following result: "The children's concepts of the Supreme Court were varied and inadequate. Some children knew that it was the highest court in the land but they could not tell what was meant by the highest court. Some knew how many justices there are in the court but few could tell just what they do. Others were not able to tell what sort of cases were tried in this court. Only one or two children were able to explain how cases go to this court by appeal."⁸

Excessive Vocabulary Loads. All investigations of the vocabulary load (which of course signifies meaning or concept load) of elementary and secondary school subjects show that the student has an excessive learning burden. This is equally true of college courses. An analysis of seven science courses which were prerequisite to courses in home economics produced the following rather startling results:

1 The seven courses used about 5500 technical terms, when words derived from the same root were counted only as one term

2 The vocabularies in the several courses were very specific; for example, only 157 of the 3900 terms found in zoology, physiology, and bacteriology were common to all three courses

3 Most of these terms were found so infrequently in the assigned

readings that there was little probability that students would learn them. For example, in inorganic chemistry, zoology, and physiology, from one-half to two-thirds of the technical terms appeared less than five times

4 Less than one-fifth of the technical vocabulary met in any of the science courses which were prerequisite for foods and nutrition courses were common to the sequent courses

5. The technical vocabulary of final courses tended to be less extensive than that in the courses which were prerequisites for them.

The futility of this kind of excessive vocabulary demand is summed up in the following comment on these data. "Investigations . . . of the rate at which people learn indicate that it is impossible for students to acquire new vocabulary at the rate which is presumably expected, *to say nothing of acquiring an understanding of the meaning of the content and the ability to see how it relates to actual problems*"⁹

Meaning Depends on Context. Symbols do not invariably mean the same thing; the behavior they evoke may change from one occurrence to another. It has been shown previously that in a strange atmosphere a sudden loud noise may produce fear responses in an infant. Amid familiar and secure surroundings, however, the same stimulus might fail to cause fear reactions. To determine whether a speaker is serious or is jesting, it is often necessary to watch his face for cues to supplement the words. We are more likely to accept criticism without resentment if it is given in a general attitude of helpfulness rather than one of censure. Garish clothes might occasion envy in one group and distaste in another. An innocent remark received without notice in peacetime might brand the speaker as a "fifth columnist" during war hysteria. Countless illustrations could be given of the fact that the *meaning* of an object, event, or symbol depends on the *context* in which it occurs.

It is important to note that the meaning of a word is very largely a matter of *social usage*. When one studies the way in which words are used to convey ideas, he is struck with the fact that a given verbal symbol does not have a fixed or

uniform meaning. The meaning of a word changes with its context. Consider, as an illustration, the various meanings of "run" in the following sentences:

You have a run in your stocking
 This train runs from Chicago to Minneapolis.
 The vine runs up the house.
 This well runs dry in summer.
 The child's nose runs
 The color in this cloth runs when it is washed.
 Never run into trouble
 The words of an old song run through my head.
 To run a horse is inhuman
 He made a good run for Congress.
 The run in the hills was full of water.
 The run of events is clear.
 We had a run of good luck
 This farm has a cattle run through the fields to the pasture.

There are many other senses in which the word "run" is used. It is said to have over a hundred meanings. Which one it signifies in a specific case is determined by the sentence context.

The context often gives us the meaning of a word or phrase which is unfamiliar. The following series of sentences has been used to illustrate how some meaning for the word "oboe" might be derived from context:

He used to be the best *oboe* player in town . . . Whenever they came to that *oboe* part in the third movement, he used to get very excited. . . . I saw him one day at the music shop, buying a new reed for his *oboe*. . . . He never liked to play the clarinet after he started playing the *oboe*. He said it wasn't so much fun because it was too easy

Although the word may be unfamiliar, its meaning becomes clear to us as we listen. After hearing the first sentence, we know that an "oboe" is "played," so that it must be either a game or a musical instrument. With the second sentence, the possibility of its being a game is eliminated. With each succeeding sentence the possibilities as to what an "oboe" may be are narrowed down until we get a fairly clear idea of what is meant ¹⁰

Limitations of Context as Aid to Meaning. It is important to note, however, that anyone who had never heard an oboe or seen the instrument would still have a very incomplete idea of what it is. There are definite limitations to the extent to which context itself, apart from actual experiences with things, can provide basic concepts. Dewey has always emphasized the importance of verbal learning, and yet, as in the following passage, he has stressed the necessity of first-hand experience as a background for verbal interpretation:

Although new combinations of words without the intervention of physical things may supply new ideas, there are limits to this possibility. Symbols themselves . . . are particular, physical, sensible existences, like any other things. They are symbols only by virtue of what they suggest and represent, *i.e.*, meanings. They stand for these meanings to any individual only when he has had experience of some situation to which these meanings are actually relevant. Words can detach and preserve a meaning only when the meaning has been first involved in our own direct intercourse with things. To attempt to give a meaning through a word alone without any dealings with a thing is to deprive the word of intelligible signification.¹¹

This difficulty is not only apparent when words are used to refer to very specific and concrete situations, but it is accentuated when they represent complex relations or general ideas. Many of the ideas in science, social studies, and other school subjects are both strange and difficult, and the context in many instances will provide only limited cues to the meanings of these verbal expressions. Yet we have been told that one of the purposes of the school is to extend and enrich experience, vicariously, through reading. If it is so difficult to understand words without actually experiencing them with the situations they symbolize, can one learn vicariously? We have already said that one can. It is important to remember in this connection, however, that the reader has to construct meanings. That is, he attempts to share another's experience by selecting and organizing those aspects of his own experience which are relevant to the words and contexts before him.

If the reader's relevant experience is meager, or if he has never used the writer's words to symbolize his own experience, he is likely to get a vague idea of what is meant, or an incorrect conception, or perhaps no meaning at all. Vicarious experiencing proceeds largely on the basis of analogy. Since we must construct ideas from our own experience, the richer our first-hand contacts with objects, persons, situations, and events, the more successful we will be in understanding and enjoying what has happened directly to others.

Wealth of experience, however, is not enough. The act of reading is more than recall of experiences which are relevant to the words in which the material is written. Reading is also a process closely allied to thinking or problem solving. Proper selection of meanings out of the many experiences which might be associated with a given word or group of words is almost always necessary. The appropriate meanings must then be grouped or organized, and the proper emphasis given to the relations which are involved. Comprehending the meaning of a selection is, therefore, an active and constructive mental process which is controlled in part by the organization of the words themselves and in part by the mental set, interest, or purpose of the reader.

Reading, in fact, is frequently more than comprehending the meaning of a passage. It is often important to go beyond this to drawing inferences or making applications of what is presented. One of the purposes of reading is to predict the outcome of the events which are described. Another may be to criticize or evaluate the author's ideas. Still another may be to relate what is read to previous knowledge and experience. Reading, therefore, is very much more than a reinstatement of experience. It is the active use of experience in constructing a new organization of ideas or in solving a problem.

Getting Meaning through Understanding Relationships. There is a much broader sense in which meaning inheres in context. We have already pointed out that historical events become meaningful as they are related to other happen-

ings of the same period and to events which occurred previously or subsequently.

Charles Beard has deplored scholars who treat "life as an inorganic one-thing-after-another and history as a string of anecdotes." He has insisted that "As long as the various divisions of history are kept separate, each must be incomplete and distorted; for . . . the philosophy of any subject (that is, the truth of it) is not at its center but on the periphery where it impinges on all other sciences" ¹² In his books on the growth of American civilization, Beard has attempted to see the life of a time, and the trends in American history, in all their interrelated phases. Wound together are political, economic, social, and cultural activities — and biological and psychological factors as well — a seamless web, Beard and others have called the structure of human life. One cannot understand any one phase of history without understanding its relations to other human institutions. In discussing the machine age, for example, the Beards explain the effect of industrial mechanization and rapid technological change upon economic processes and political institutions, and upon American slants of thought, modes of living, manners, and esthetic expression as well.

Things which stand alone mean little. It is when they are related to other things that they take on significance. Dewey had this function of context and relationship in mind when he said:

Since all knowing, including all scientific inquiry, aims at clothing things and events with meaning — at understanding them — it always proceeds by taking the thing inquired into out of its isolation. Search is continued until the thing is discovered to be a related part of some larger whole. Thus a piece of rock may be understood by referring it to a sedimentary stratum known to have been formed under certain conditions. . . . Suppose the rock has peculiar markings on it [which] . . . may arouse inquiry. If so, the resulting investigation will have for its purpose the removal of the apparent isolation, the non-connectedness, of the markings. Finally, they are explained as glacial scratches. They no longer stand alone. They have been

brought into connection with a past era of the earth's history in which great masses of slow-moving ice descended into regions now temperate, carrying with them grit and rocks that ground and scratched other rocks imbedded in place ¹³

Students who get real zest from learning are those who actively relate what they learn, instead of compartmentalizing it and leaving it neatly wrapped up in course packages. By relating and organizing knowledge and insights from many sources, they make education a constant process of discovery, and learning the continuous extension and refinement of meanings.

THE IMPROVEMENT OF UNDERSTANDING

"Find the Referents." We have discussed the difficulty of understanding even those verbal symbols by which writers refer to very concrete objects, and have commented briefly on the much greater difficulty of getting the meaning of symbols used to represent abstract ideas. It is extremely important, particularly when dealing with problems that strongly affect human welfare, to be sure that we understand what writers and speakers mean to say. Perhaps we should also make an effort to detect language which sounds impressive but which, upon analysis, turns out to be practically meaningless. How can we detect the meaning of a passage? Students of language have proposed that we do so by finding the *referents* — determining what objects or situations the verbal symbols actually represent, or point to.¹⁴ To understand what a writer or speaker means to say, we must discover what his words stand for in his experience — in other words, determine *his* referents. It is often extremely difficult, however, to determine an author's referents. We have already given several illustrations of the faulty meanings which students secure from their reading. Why is it so difficult to get another person's meaning accurately?

First of all, the language used may be inadequate to represent the realities for which it stands, or the ideas it would

convey. This inadequacy may be due to lack of skill in expression. It may also be due to real limitations of language as a medium of communication. It is difficult enough to describe concrete objects adequately, but the limitations of language are even more pronounced, it has been pointed out, in explaining historical trends, complicated scientific phenomena like atomic structure, or the cultural web of a certain historical period.

Second, the words an author uses may not refer in the reader's experience to the same things which the author is attempting to represent. Sometimes the reader may have little or no experience at all to which the symbols are relevant. In the former instance the reader gets some other meaning than that which the writer expected him to get, and in the latter, he gets no meaning at all.

The Bases of Understanding and Misunderstanding. It is now easy to see how people apparently understand each other in a discussion, but actually end far apart in their meanings. Two persons really understand each other only when the words they use refer to the same sorts of experiences — the same objects, events, situations, or relations. Fortunately, there is a great deal of commonality in the lives of most of us, and in the words which we use to symbolize our common experiences. On many occasions, therefore, we understand each other fairly well. But if our verbal symbols stand for different rather than similar referents, we are very likely to misunderstand each other. As long as the discussion is purely verbal, we may be oblivious of the misunderstanding. But when we resort to some particular activity in connection with the matter at hand, our lack of agreement may be revealed. It is also possible, of course, to think we disagree when we actually are of the same mind. This can happen when we use *different language* to signify the *same referents* without knowing it.

The problem of understanding human discourse is not always as simple as identifying the referents. Sometimes an individual may use language as a deliberate means of dis-

guising his real ideas or his actual purposes. In other instances, he may be unconsciously giving expression to certain fears, conflicts, or wishes. To get the real significance of language in such circumstances, it is necessary to interpret it in terms of the deep-seated motives within the personality. The expression of these underlying mechanisms is often indirect rather than straight-forward. Although all these factors in the interpretation of language are important, we shall gain greatly in understanding in most instances by trying to find the definite situations which verbal symbols are used to represent.

Probing the Significance of General Terms. We are prone to roll high-sounding words over our tongues without any preciseness of meaning. Such words or phrases as "democracy," "communism," "fascism," "capitalism," "social justice," "liberalism," and "the American Way" are good examples. Unfortunately, the fact that one is verbally opposed to fascism is no assurance that he is equally opposed to specific forms of fascist behavior. An ingenious investigation of student attitudes called, first, for acceptance or rejection of certain *generalized* attitude statements concerning fascism and, second, for the same sort of reactions to specific fascist *practices*. Many students professed antagonism toward fascism in general but approved specific political, economic, or social activities which judges had classified as definitely fascist in character.¹⁵ In using such terms as those above, it is wise to keep in mind the specific *activities and relationships* which the symbols refer to, and it is certainly prudent to expect others who use the terms to be equally able to point to relevant forms of action. A recent treatment of the problem of obtaining definite meanings for abstract terms suggests that one ask such questions as the following: "What would happen if this did not exist?" or, "How would the situation differ if it did not exist?" or "What would have to be done to this to accomplish a certain result?" Thus, one might ask, "What would happen if *democracy* did not exist in this country?" or "What would have to be done to establish *international justice*?"¹⁶

Scientists have used essentially this procedure in defining their terms. Physicists, for example, indicate the meaning of a technical term or phrase by stating the *operations* which are performed in connection with it — procedures which can be explicitly detailed, and, if desired, repeated by other scientists. These operations are the referents of the term. Since they are what it stands for, they constitute its meaning. Psychologists have been developing a more satisfactory special vocabulary by trying to specify the *behaviors*, the activities, to which technical terms refer. In this fashion, also, it is possible to standardize a terminology, so that it means at least approximately the same thing from one psychologist to another, and so that its significance does not change markedly from one context to another.

Improving Comprehension by Simplifying Vocabulary. Enough illustrations of pupils' erroneous concepts and of the difficulties of understanding verbal symbols have been given to emphasize the fact that aiding students to get accurate meanings from their reading is one of the most important problems of instruction. What are some of the fruitful means of improving comprehension?

One proposal which has been evaluated experimentally is to simplify the vocabulary of reading material in social studies, science, and other subjects. In his study, Nolte used as the original reading material three selections from a carefully constructed test of reading comprehension designed to measure paragraph comprehension, organization of ideas, grasping and understanding significant details, and comprehension of total meaning. He then revised these selections, using only those words which appear in the first 2500 of the Thorndike Word List. These are words which occur with high frequency in reading material for children and adults. The second simplification was made by translating the selections into "Basic English." Basic English, a system devised by C. K. Ogden of Cambridge University, consists of 850 words which are names of "things, acts, directions, and quali-

ties with simple, regular rules for putting them together into smooth English." This relatively simple vocabulary supposedly is sufficient to express all meanings essential to normal, nontechnical discourse. One of its principal purposes is to make possible the translation of abstract expressions into more concrete and realistic forms. In making these two revisions, care was exercised to retain the original meanings, and in order to check on the success with which this had been done, the selections were submitted to five competent authorities in the fields concerned. Sixth grade pupils were tested on their comprehension of the original and revised selections. Although the substitution of simpler words definitely aided comprehension on a few individual items of the test, there were no differences in understanding among the three forms in which the selections were presented which could not be accounted for by chance. The experimenter cautioned against minimizing the importance of vocabulary in relation to reading difficulty but pointed out, nevertheless, that "using a master word list based upon mechanical word counts or a word list of extremely narrow limits is insufficient in itself to make material more readable."¹⁷ Other studies have shown that simplifying the vocabulary of literary selections did make the content much easier to grasp. There is abundant evidence, furthermore, to show that the proper selection of words, gradual introduction of new words, and careful grading of the vocabulary are essential in preparation of reading material. These factors, plus the complexity of sentence structure, are systematically controlled in acceptable basic reading texts and supplementary materials. Modern textbook writers in arithmetic, social studies, science, as well as in foreign language and other secondary school fields, are careful to control vocabulary load. Nolte's study is particularly valuable, however, in emphasizing the fact that, in addition to vocabulary and other structural elements of discourse, *the inherent difficulty of the concepts in relation to pupil experience* plays a major role in meaningful reading.

More fundamental, then, than the vocabulary itself are the underlying meanings and ideas, and the ability of the individual to construct concepts out of his experience in response to verbal symbols and word relationships. It is possible to express complex and difficult ideas by words which occur with very high frequency in printed material. For example, the following sentence is made from words in the first two thousand of the Thorndike word list "The square of the sum of two numbers is equal to the square of the first added to twice the product of the first and second added to the square of the second."¹⁸ This is a difficult sentence to understand, it should illustrate influence on comprehension of the intrinsic difficulty of the concepts involved and their remoteness from the experience of the reader.

Improving Comprehension by Vocabulary Training. Another means of aiding comprehension is to give students systematic vocabulary training. There is a considerable body of research which confirms the value of this procedure. Experiments have shown, for example, that well-organized methods of promoting the understanding of mathematical terms stimulate better learning in that subject.¹⁹ Specific training on the meaning of geographical terms in historical material improves pupils' comprehension of history.²⁰ Direct attention to the meaning of historical terminology has proved fruitful if the instruction is given on the terms, not in isolation, but in "such a manner that it amplifies the meaning of the specific historical situation in which the meaning occurs."²¹ In a recent experiment, incidental and direct methods of developing the meanings of words encountered in history were compared. In the one group, the teacher gave no guidance in vocabulary development except as individual children came to her desk for help. In the other group, the teacher gave specific vocabulary assistance throughout the study periods. Her purposes in this instruction were (1) to stimulate clear, vivid associations between word meanings and their oral and written symbols, (2) to promote the habit of using

context in deriving the meaning of words and phrases, and (3) to provide opportunities for pupils to use new words appropriately in oral and written expression. On vocabulary tests given at the end of the experiment, the pupils who had had systematic instruction in word meanings were much superior to those who had received only incidental guidance. The authors of the study pointed out that wide reading alone is not as effective in stimulating interest and in developing fluency in expression as definite assistance in acquiring full and accurate meanings.²²

Aiding pupils in the development of meaningful vocabularies must not be confused with having them memorize definitions, which is usually just another form of verbalism. Technical terms need to be fortified by experiential material, or based upon a sufficient amount of pertinent detail, if they are to be understood. One of the best means of determining whether students understand special vocabulary is to have them provide their own illustrations or to see whether they can use the terms appropriately in new situations.

Means of Extending and Enriching Experience. Throughout our entire discussion on the nature of meaning and the development of understanding, we have constantly emphasized the importance of extending, enriching, and deepening the individual's experience. How can the school accomplish this purpose?

One of the first steps should be to exploit the local environment to the fullest possible extent. Nature study, general science, biology, and physical science are usually too bookish as they are now taught. The woods, streams, rocks, farm lands, and natural phenomena of all kinds are laboratories as essential as the formal laboratory and classroom. The local environment is also an important means of understanding historical events and trends. "The community," it has been said, "is an epitome of the world, and an understanding of it is the best preparation and the strongest assurance of an understanding of wider scenes."²³ The school journey, or the

excursion, thus becomes one of the most useful learning activities. Other means of providing concrete experience are found in projects, or "constructive activities," which are attempts to create realistic representations of things read about, and to provide an experiential basis for later learning situations. Assembling classroom or school museums, using public museums, and arranging exhibits in connection with instructional units provide additional opportunities for extending experience.

Visual Aids as a Means of Enriching Experience. One of the most promising ways to supplement the pupil's experience and the resources of the immediate environment is to utilize the great variety of visual aids which are available. The phrase "to supplement" in the previous sentence was used advisedly, for these media of instruction are not *substitutes* for verbal materials, but means of making them more effective. In fact, these devices are likely not to be productive when they stand alone, but only as they are closely integrated with other media and with other learning activities. The use of motion pictures is increasing rapidly in the schools, but they are too often treated as "shows" and not as efficient means to well-defined learning outcomes.

Visual aids include pictures, drawings, photographs, prints, stereographs, lantern slides, animated drawings, silent and sound motion pictures, maps, globes, charts, graphs, diagrams, models, and perhaps even other devices. Care must be exercised in employing these aids, for their effectiveness often depends on specific instruction in their use. Furthermore, one's ability to profit from visual aids, as from verbal stimuli, also depends on a relevant background of experience. Several college students, for example, missed the point when a stock ticker crashed in the motion picture, "The Plow That Broke the Plains." They did not know what the machine was, and so failed to sense that it symbolized the breakup of the expanding economy, which had caused man to turn the great plains into wheat fields.

There are two fundamental criteria for the selection or preparation of all types of visual materials. First, they must provide an *accurate* representation of reality or they will simply aid the individual to acquire hazy or incorrect meanings. Second, they must be used as means, and not as ends in themselves; in other words, they are visual *aids*.

Motion pictures, when chosen because they are directly relevant to the purposes of instruction, are especially effective means of making learning experiences realistic. Their contribution to the development of meanings has been well summarized in the following general statements of the results of experimental studies:

- 1 Motion pictures, like other pictures but to a superior degree, contribute materially to the accuracy, the richness, and the significance of students' concepts. This is particularly true of descriptive aspects. Places, people, events, and processes are made to seem more real.

- 2 As a consequence, thinking is made more effective, empty verbalism reduced, vocabulary increased, and language made more meaningful . . .

- 3 Children who are lacking in imagination, low in intelligence, or below the average in reading ability, are helped especially.²⁴

Furthermore, motion pictures have proved to be particularly worth while where knowledge of movement is essential, or where an understanding of relationships is important. In an extensive series of experiments on the contribution of motion pictures to historical learning, the photoplay proved so efficient in teaching a knowledge of interrelationships involving the interaction of events and forces that it increased pupils' achievement about thirty-five per cent over purely verbal instructional materials.²⁵

ABSTRACTION AND GENERALIZATION

The Process of Generalization. Abstract or general ideas have been referred to several times in this treatment of the problem of meaning. What is the nature of a general idea, and how does the process of generalizing take place? If, in

thinking or communicating ideas, we had always to refer to specific objects, events, situations, and relationships, or to a large number of such particular instances which we wished to include, the process would be extremely cumbersome. It is fortunate, therefore, that man is capable of *classifying* his experiences, and using one word or a group of verbal symbols to represent many items or certain essential aspects of many related events. Thus it is convenient and efficient to speak of "education" rather than to enumerate all the results and processes of learning. Furthermore, it is by *ordering* our experiences that they become most meaningful and useful. We have repeatedly stressed the importance of experience as a background for meaning, but the mere accumulation of experiences is of doubtful value. It is by *relating and organizing* our experiences that they become most significant. This involves the tremendously important human ability of thinking about many qualities or characteristics of things in settings other than those in which they were originally perceived. We can come to think of the quality of roundness, area, or honesty without considering all the concrete situations in which these qualities had been previously observed. Generalizations also help us to carry over our understanding from old to new situations. The classification and organization of experience enable us to *interpret* new events by relating them to previous meanings. Thus when we are able to classify a particular sort of animal we have not seen before as a dog, we know how to react appropriately to it. Developing general ideas, then, is one of the most important aims of education.

Illustrations of Abstractions. Inasmuch as one of the important tasks of education is the development of abstract ideas, and inasmuch as such ideas are most important materials of thought, it will be advisable to ascertain as fully as possible the principles involved in such learning. In arithmetic, one, two, and other numbers; sum, difference, remainder, product, and average; add, subtract, divide, and multiply; percentage,

discount, interest, profit; length, width, height, area, and volume are not real objects in the ordinary sense, but aspects or relations which may appear in countless different situations. In other subjects we encounter such concepts as noun, verb, subject, predicate, object; soft, hard, big, little; triangle, circle, square; above, beside, without; north, south; if, why, how, nevertheless. Honesty, fairness, right, wrong, sympathy, liberty, justice, government, law, order — these are facts which do not exist in the child's experience until ideas of them are laboriously acquired. Two well-known studies of the process of generalization throw considerable light on this complex form of behavior.

Experimental Studies of Generalizing. The first experiment was designed to verify the assumption that generalization takes place by identifying the element which is common to a variety of specific situations, and supplying a name for this general term or concept. Chinese characters were used. These notations (which are illustrated in Fig. 21) are real combinations of smaller figures called radicals. The same radical was combined with a variety of other elements, and the subject's task was to learn to apply a given term (in this case a nonsense-syllable) to all characters which had a common radical. The characters were presented to the adult subject in different ways in order to study certain factors associated with the process of generalizing. The results showed, first, that there was a definite advantage in presenting the common element first in relatively simple settings, and then going to the more complex combinations. This finding suggests that for purposes of instruction, one should select total situations in which the particular aspect to be abstracted is as obtrusive as possible, and encumbered by as few irrelevant details as possible.

The second conclusion was that reasonable familiarity with many concrete cases is better than intensive work with a few. This result emphasizes the principle that a clean-cut abstract idea is usually achieved only as the outcome of wide exper-

ence. Children may learn to act in a kindly or honest manner in a number of situations, or to add or to use the number two on several occasions, without really acquiring the abstract idea involved. The following definitions, given by children of twelve or above, illustrate inadequate notions of the real meaning of *justice*. "It means a court", "it's the Court House";

WORD CONCEPT	PACK I	PACK II	PACK III	PACK IV	PACK V	PACK VI
oo	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇
yer	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇
li	力	𠂇	𠂇	𠂇	𠂇	𠂇
ta	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇
deg	石	𠂇	𠂇	𠂇	𠂇	𠂇
ling	穴	𠂇	𠂇	𠂇	𠂇	𠂇

FIG 21 SOME OF THE CHINESE CHARACTERS USED IN HULL'S EXPERIMENT ON THE DEVELOPMENT OF CONCEPTS

Note that a nonsense name is given to each radical (basic concept) on the left. Then each character to the right contains the basic radical in some form. The subjects learned to call each character by the name of the basic radical which it contained. (From Woodworth, *Experimental Psychology*, 1938, after Hull.)

"it means to have peace"; "to be kind"; "to be honest"; "to do right"; "to get punished." When children have such ideas as: "to multiply always means to make bigger"; "weight is what is in things to make them fall"; "adverbs are what end in -ly"; the process of generalizing has obviously been incomplete.

To provide the proper conditions for abstracting a character, it is necessary to present a large number of different situations which contain it. When the abstract quality is

given in but one situation, or but few situations, it remains embedded in the larger unit. A mother had attempted to teach her child the meaning of square by presenting the top of a box which was displayed while the word "square" was repeated and explained. When the father was told of the lesson, he held up a paper, asking "What is this?" "A paper," was the response. "Yes, but what kind of a paper?" "A white paper," etc. No effects of the lesson could be secured by the use of cards and other objects, but when directly asked "What is a square?" the child ran to the box, exclaiming proudly, "That is a square." Squareness had not been abstracted. It was not known as such but only rather vaguely as a feature of the box situation. To develop an idea of squareness, one must show the child many different gross totals which contain it, such as a square card, a square desk, a square block, a square board, drawing, picture, etc.

The data of the experiment with Chinese characters also showed that there was no advantage in presenting the element in isolation. Recognizing one of the radicals alone was no assurance that it would be recognized in a complex Chinese character. In other words, although the first presentation should be in a simple setting, with a minimum of irrelevant details, learning should take place from the beginning in a realistic situation.

The results also indicated that a reasonable length of time is necessary for the generalization to emerge. In some instances, as suggested by concept H in Fig. 22, the evolution of the concept was gradual. In others, the generalization was made rather suddenly after a somewhat extended initial plateau. These curves are suggestive of the learning processes in which the individual suddenly gets insight, "sees into the situation."

Finally, this study agrees with many others in revealing that one can form a generalization without being able to verbalize it. Evidence that the concept has been made comes from the consistent appropriate behavior of the individual in successive

test situations. One illustration of unverbilized generalizations is the way in which children come to express the sense of past time by consistently using the "ed" form of the verb. They characteristically express past tense by casting verbs never used before into the regular form.²⁶

The second experiment was designed on the assumption that the common properties of situations which form the basis of a general idea are not specific elements, but relationships.

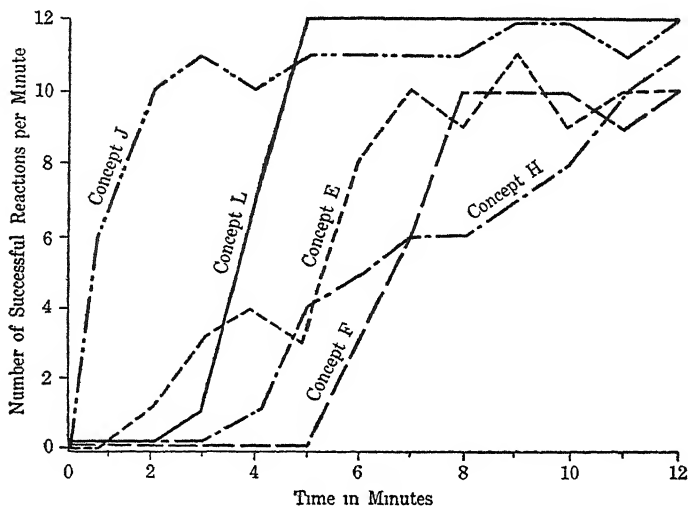


FIG. 22 CURVES OF LEARNING FOR THE ACQUISITION OF FIVE CONCEPTS

These curves, like those for skills, show different shapes (From C. L. Hull, *Quantitative Aspects of the Evolution of Concepts*, Psychological Monographs, 1920)

The definition of concept formation implicit in this study was the following one: "By 'concept formation,' 'generalization,' or 'concept learning,' we refer to the process whereby an organism develops a symbolic process (usually but not necessarily linguistic) which is made to the members of a class of stimulus *patterns* but not to other stimuli." (The italics are the writer's) The materials of the experiment were geometrical figures which differed in color, shape, size, or position, but which contained some common relationship.

The problem was to attach a nonsense term to all figures that possessed the same pattern. Thus, "dax" was the name of any figure that contained a circle with one dot inside and one dot outside. A figure that contained a circle with both dots inside had to be distinguished from the appropriate "dax" characters.

This experiment also provided evidence that unverbilized but functioning generalizations may be formed. Negative instances — figures marked with a minus sign to indicate they did not contain the proper relationship — did not prove useful in guiding generalization. Finally, the process of developing a general idea was an active one. It involved the formation of tentative hypotheses, the testing of these inferences, and the revision of the hypothetical principles until they satisfied the necessary specific instances.²⁷

Generalizing an Active Process. This last finding suggests that an important principle of guidance in generalizing is to induce pupils to react vigorously. You will recall that in Chapter XII we found that, in learning a poem or other material, the rate of learning and the character and amount of retention were improved by introducing actual recall ("recitation") as soon as some of the material could be revived without too many errors. The same principle applies to the acquisition of abstract facts. It is very important that the pupil be given experience not merely in perceiving the elements as the teacher presents and emphasizes them but also in discovering them for himself. The pupil will learn to identify a subtle fact or relation in new situations better by being guided into taking the self-active attitude of exploration and discovery than by being permitted continually to sit and be shown. Thus if the problem is to achieve ability to appreciate such concepts as squareness, weight, fourness, liberty, etc., the pupil should meet many different novel situations, problems, and projects which make the discovery of the essential factor a means to the solution of the problem or the carrying out of some purpose or project.

The method of utilizing the self-activity of the learner in the process of overcoming a difficulty, satisfying a need or purpose, solving a problem, or completing a project we shall treat at greater length in the next chapter. At present we shall merely state that, just as recitation or active recall should comprise the major portion of the activity in memorizing a poem, so should self-directed activities of finding the subtle facts in many new situations be the predominating activity in learning to generalize. Concepts cannot be supplied ready-made for students.

Ideas Defined by Using Them. It is by using an idea that it becomes more definite. The child's idea of a dog, for example, is constantly undergoing change and development. The child at first perceives the animal and proceeds to deal with it much as he would with other objects with which he is familiar. He observes legs somewhat like those of his toy chair, and when he seizes a leg by which to carry the puppy about, the child's idea is modified by the painful consequences. If the child squeezes the puppy too affectionately, as he might a stuffed animal, the yelp or possibly a snap results in a revision of the old way of perceiving the pup to take account of new factors. The dog, in the course of time, is perceived and thought of as an object with sharp teeth, a certain weight, great strength and agility, a thing that mustn't be stepped on or immersed in water, which barks at birds, snaps when disturbed in feeding, and never talks, but is generally a playful companion. Thus the child's idea of a dog is a changing, growing complex of particulars.

Analysis and Combination in Acquiring an Idea. In the development of percepts and ideas, two processes are going on simultaneously. The complex object is, on the one hand, analyzed; the subtle features are perceived. Details of the dog's appearance and behavior are noticed. The shape of the pup's ears, the number of toes, the significance of slightly different whines and barks, the characteristics of its fears and angers are observed more and more specifically. Percep-

tion of the dog, and consequently thinking about it, become progressively more detailed and refined. At the same time, a process of synthesis or reorganization is apparent. Perception and thinking become not only more refined, but also more broad and inclusive; they reach higher and more complex integrations. The minute facts become *organized* into unified percepts and ideas more rich and comprehensive. Analysis and synthesis — that is, addition, subtraction, and integration of elementary facts — go on simultaneously and continuously. The idea is a constantly growing complex of integrated particulars. It occurs as a single response, but a great many facts may be implied in the reaction.

In like fashion, concepts or general ideas develop by the process of analysis and synthesis. Refinement of general meanings proceeds at times by eliminating certain things from a class or group on the basis of their discriminated characteristics. But development also takes place by making a symbol represent more things — included because of their common essential details or relations. Thus the concept of dog changes as other animals, at first included under the term, are differentiated from dogs. It also develops as other kinds of dogs than those originally included are brought under the class name. Meanings thus change by complementary processes of restriction and expansion. Neither aspect of development could take place without the differentiation of gross situations and responses into more detailed patterns. This more detailed and accurate discrimination and the processes of restriction and expansion occur to the extent to which they become essential or worth while to the individual in attaining his purposes.

Dangers in Use of Abstract Ideas. Abstraction and generalization are useful and essential means of thinking and of conveying ideas. But they are also sources of confusion. Generalizations lose their value for accurate thinking when they are used as entities or realities. Actually, of course, general ideas are valuable or meaningful only to the extent

that one can at any time refer back to the specific situations from which the generalization was made. Unless these referents, or equally relevant ones, can be identified, we are likely to indulge in word magic. Words are "tags," and we should be conscious of what any label represents.

Another safeguard in use and interpretation of language is to be fully aware of the level of abstraction at which the discussion takes place. The process of abstracting classifies specific instances under *common features* and *excludes the differences*. It is therefore important to be conscious of the characteristics which have been ignored in the process of labeling or classifying particular events.

Such words as "communism," "freedom," and "Jew" are often used, not to convey meanings clearly, but to evoke *emotional* responses. The purpose of doing so frequently is to block intellectual apprehension rather than to stimulate it. It is particularly important in teaching students to interpret spoken and written discourse to train them to detect language used to arouse emotion and react accordingly. This means, for one thing, to recognize instances, in literature for example, where the affective function of language is desirable, and other cases, such as discussion of public affairs that call for reasoned understanding, where emotional stimuli are likely to forestall rational consideration.

Curves of Learning for Ideas. The fact, pointed out first in Chapter VI, that ideas and concepts are acquired by a process of growth should now be clear. This growth process is actually similar in essential characteristics to the development of skills. It is difficult to measure the growth of the practical usefulness or the richness of meanings in the objective manner that the development of typewriting ability can be measured by testing the number of words written per minute. For this reason, we have relatively few "curves of learning" for ideas. From data gathered in a study of the nature and development of children's social concepts — such as ideas of democracy, labor, and capital — a rough graph, showing the

increase in number of correct answers to a series of crucial questions, has been constructed. It appears in Fig. 23.²⁸ Since this curve is smoothed by combining the records of about fifty children in each grade it does not show the irregularities typical of the growth of such ideas in any one child. The curve, on the whole, is similar to some of the curves shown in Chapter XI.

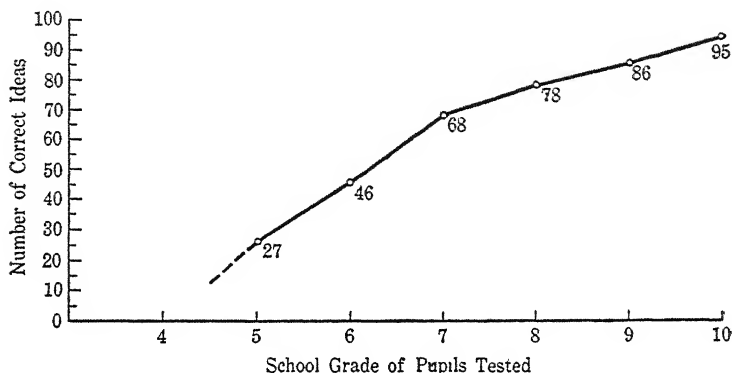


FIG. 23. LEARNING CURVE OF AN IDEA

The curve is based upon tests of ability to answer questions about social concepts. It shows the average number of questions answered by about fifty children in each grade from grades five to ten. The individual irregularities typical of curves of learning are smoothed out since the record includes the achievements of a large number of pupils. (Adapted from Meltzer)

The growth in understanding of certain geographic terms from grades four to seven is presented graphically in Fig. 24.²⁹ These curves are also based upon averages, and hence are smoother than individual growth curves would be. All of the terms represented in the graph occurred in the textbook material studied in all four grades, so that all of the children had had some opportunity to learn their meanings. The growth patterns of the different terms varied considerably.

The process of development of many abstract ideas requires several years. An average child of three or four can correctly perceive a large number of objects such as a cup, knife, penny, shoe, automobile, airplane, and pitcher, but he is usually

five before he can count four objects correctly. He is seven before he can explain how wood and coal are alike. Not until eight does he realize the meaning of, or take much interest in, abstract similarities and differences, such as the difference between a baseball and an orange, or an ocean and a river. Not until twelve is the child able to define such abstract words as constant, charity, courage, defend. Previous to this year,

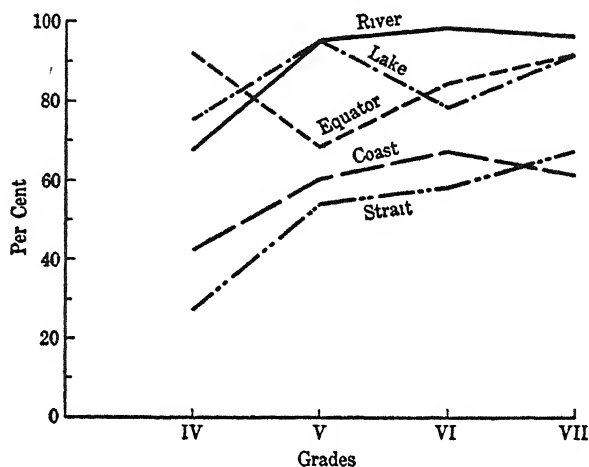


FIG. 24. GROWTH IN UNDERSTANDING OF GEOGRAPHICAL TERMS

These growth curves are based on the average percentage of correct responses given by children to the five terms *coast, equator, lake, river, and strait*. (From Eskridge, *Growth in Understanding of Geographic Terms*, 1939)

the average child may have been taught to express pity and to act charitably, but the idea will not have been thoroughly abstracted. He may, too, have been taught verbal definitions of some of these terms without really having the idea in abstract form.

SUMMARY

This chapter was devoted to one of the problems in educational psychology of greatest significance in education, that of how meanings develop in the course of learning, and how we derive meanings from verbal symbols. The main points of the discussion may be summarized as follows:

1. Teachers should distinguish between real comprehension and empty verbalism — the memorization of verbal statements without understanding. It is essential to probe behind the words which students use to discover what they mean by them. These meanings may be vague, incomplete, inaccurate, or completely wrong.

2. Meaning depends in the last analysis upon experience. Words mean to anyone what they represent in his experience.

3. Comprehending a passage, however, is not only the process of recalling experiences that are related to the verbal symbols. It also demands an active process of selecting the most pertinent meanings and organizing them adequately with respect to the structure of the discourse and the purposes of the reader.

4. Meaning depends in considerable degree upon context, or upon the relationships of language forms and of ideas. One way to make experience more meaningful is to organize it systematically and purposefully.

5. One means of getting meaning from spoken or written discourse is to identify the *referents* of the verbal symbols, that is, to determine what situations they are used to represent. This is particularly important in interpreting how such general expressions as “communism” or “fifth columnist” are being employed.

6. There are several ways in which meanings may be improved or clarified.

a. Most textbooks burden the student with an excessive vocabulary load. It is essential to develop technical terms systematically and to review or use them meaningfully in a variety of purposeful activities. In some instances, simplifying the vocabulary of a selection may aid comprehension. In other cases, however, simplification may be of limited assistance because the real difficulty may lie in the inherent complexity of the ideas being presented.

b. The fundamental means of stimulating understanding is to enrich the individual's experience and to provide

purposeful opportunities for him to use and to interpret language relevant to this experiential background. Some of the fruitful ways of extending experience are (1) to utilize the local environment; (2) to supplement immediate experience and the resources of the local environment by extensive reading and by visual aids, such as motion pictures, charts, maps, slides, and demonstrations; and (3) to organize projects and other constructive activities as a means of attaining well-defined educational outcomes.

7. Generalizing is the process of identifying the common aspects or basic relationships in a variety of specific situations. Generalizing validly is an active process of exploration, discovery, and utilization, and ordinarily necessitates a large amount of experience. General ideas are not acquired ready-made, but are the result of a growth process. Concepts grow in richness, accuracy, and usefulness in the course of purposeful experiences.

QUESTIONS AND EXERCISES

- 1 Trace your idea of the significance of the word "*psychology*" during this course. In what respects is the development similar to and different from that of the child as he becomes acquainted with his dog?
2. Discuss the possible derived meanings, the symbolism, behind certain customs of dress and grooming such as
 - a Saddle shoes and ankle sox in winter
 - b Excessively long fingernails as worn by men in China and to some extent by women in our country
 - c. Light, fluffy, elaborate evening dresses for women.
 - d. Suit coats for men in offices and at meals no matter what the temperature
- 3 Consider the case of a child who is deaf from birth. How would you teach such a child to read and understand such words as "eyes," "cold," "mother," "under," "his," "pretty," "swim"?
4. Make a diagram to show how a child comes to recognize the word "doll" as representing the known object. Look up the term "conditioning" or "conditioned response" in some other elementary psychology book. How does the term "conditioning" differ from the phrase "establish the belonging" used in this chapter?

5. Suggest two expressions, other than those cited in the text, which could not be understood completely by children from your home district. Why would understanding be difficult?
6. Leaf through this chapter and list the words that are not familiar to you in the particular context in which you find them. On the basis of this limited survey estimate the number of new words or new meanings you would have to learn each day in order to master all of the material of your various courses.
7. How would you teach first grade children to recognize and know the significance of the suffixes -ing, -ed, -s, and -er?
8. Write five sentences to inform a southern Indian child through context what velvet is. What first-hand experiences have you had to assume? List and justify your assumptions.
9. Criticize the teaching of concepts or principles in history, geography, physics, geometry, or some other subject as it was taught to you or as you have recently observed it being taught.
10. Recall a recent argument which you heard or in which you participated. State the subject and outline the progress of the discussion. Identify the "referents." Was there an essential disagreement? Specify.
11. Illustrate the statement that there are always limits to the degree to which facts are generalized or understood.
12. Cite an instance from your own experience of the use of movies in the school program. Was the picture closely linked to a learning project? Was it purely entertainment? What are the advantages and disadvantages of using movies in this manner?
13. Try an experiment in incidental learning. Take five white cards and on each trace one circle, the exact size of one of the five common coins, penny, nickel, dime, quarter, and half-dollar. Present these in random order and ask a classmate to guess the coin represented. Keep a record of his guesses. Try this on several classmates and summarize the results. What conclusions can you draw?
14. The comment has been made that our calendar would have been reformed long ago if someone had not invented the jingle, "Thirty days hath September." Do you agree? Why?
15. Give some examples from your own experience of the use of artificial associations to create "meaning" and, hence, to aid memory. Is this procedure justified? Under what circumstances would you urge children to use such a device?
16. Select some word which is used much in modern controversy, such as fascist, radical, or fifth columnist. Make a collection of

the meanings, the "referents," as it is used in current discussions or writings

- 17 What methods would you use to enrich the experience of a group of third grade city children before you had them begin a farm reading unit?

- 18 Look at the following list of nonsense-syllables

mup, wal, lub, seg, yin, taz, bip, ler, ron, pij

Are they truly "nonsense" to you or do you attach some sort of meaning to each as you read them? What then is the difference between this sort of material, which is often used in laboratory studies of learning and memory, and the meaningful materials of the daily school program?

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Language in General Education, Commission on Secondary School Curriculum of the Progressive Education Association, Appleton, 1940, Ch. 1, 4.

The problem of meaning in psychology is discussed most understandably in the following book with data and interpretations from practical educational situations:

Horn, E, *Methods of Instruction in the Social Studies*, Scribner, 1937
Ch 4, 5, 9, 10 Chapters 9 and 10 deal with ways of enriching children's experience as a basic way of making meanings more extensive and more accurate.

In connection with the development of meaning and ideas, it would be worth while to review the section on the development of language in Chapter VI and perhaps to read a longer account in A. T. Jersild, *Child Psychology*, Prentice-Hall, 1940, Ch 5, or in N L Munn, *Psychological Development*, Houghton Mifflin, 1938, Ch 12.

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CHAPTER XIV

Reasoning and Problem Solving

At a time when the need for meeting individual and social problems rationally is greater than ever before, there seems to be a growing pessimism concerning the ability of human beings to reason or to learn to solve problems more effectively. What are the possible causes of this discouragement? How far is it justified?

THE NATURE AND DEVELOPMENT OF REASONING ABILITY

Variation in Reasoning Ability. One source of the disillusionment about the cultivation of the higher mental processes is the notion that the masses are so limited in mental ability that they are incapable of reasoning. It is obviously true that individuals differ greatly in problem-solving ability, just as they vary widely in any other psychological trait. It is equally true, however, that this variation is continuous; in other words, there is no point that divides the people who can reason from those who cannot.¹ Differences in reasoning ability are differences in degree. Some individuals can solve more difficult problems than others can manage; some can solve more problems in a given length of time; some are less susceptible to prejudice and emotional impulse, some are more limited in certain fields because they do not possess special aptitudes in sufficient degree or because their experience in these fields is meager; some are less efficient, too, because they have not developed a sufficiently flexible method of attack upon problems or because they have not learned how

to work effectively. Investigation of all these dimensions of problem-solving ability shows that human beings vary in these characteristics in terms of more or less instead of in terms of all or none.

Reasoning Efficiency Improved by Systematic Training. Closely related to the belief that the majority of people cannot reason is the rather widespread conviction that problem-solving ability develops instinctively, and that training in reasoning is therefore either unnecessary or impotent. In other words, it is assumed that some individuals grow naturally into good problem solvers, while others are not endowed with much capacity for thinking, and there is nothing that education can do about it. It is true, of course, that problem-solving ability is greatly dependent upon native endowment, and that no amount or quality of education could stimulate intellectual attainments beyond a certain limit. But there is good reason to believe that few of us fully utilize our native capacity for learning. The fact that we ordinarily fall short of potential achievement is revealed in many studies of improvement under desirable conditions of practice and motivation. There is good ground for believing that few persons learn to reason most rigorously and effectively without systematic training in the process and a great deal of active experience in solving or attempting to solve problems. High proficiency in reflective thinking does not appear by magic — not even the magic of inheritance alone.

The Importance of Increasing Reasoning Efficiency. Another cause for doubting the value of trying to improve reflective thinking through the school program seems to be the prevalent belief that human behavior is nearly always swayed by emotion and very seldom directed by reason. There is no question about the fact that we act too often on impulse rather than judgment. But that does not force us to the conclusion that we should pay less attention to rational learning and more to the association of acceptable behavior with emotional appeals. Such a program is an authoritarian

one, for it necessarily means that solutions are handed down from above. Those in power determine what actions are acceptable. The very purpose of conditioning action to emotional symbols is to circumvent the intellect. The ideals of a democratic society, on the other hand, are realized through a critical evaluation and rational acceptance or rejection of the proposals of political leaders, and through the stimulation of widespread reflection on social problems. Democracy demands more, not less, intellectualization of crucial issues. We should strive for a progressive reduction of intellectual naiveté, emotional impulse, and unreasoned prejudice. How much we could improve the reflective and critical abilities of the people no one knows. But it is conceivable that an average improvement of even ten per cent might effect profound progress in democratic affairs.

Ability to Reason Develops Gradually. Still another cause for neglecting education in problem solving is the notion that the reasoning powers develop late and rather suddenly. This concept of mental development is based upon the assumption that the child's capacities to acquire specific skills and to memorize particular items of information develop first, and that only after these powers come to fruition is the child capable of reasoning. This doctrine was much more general a decade or two ago than it is now, although it has not disappeared by any means, and it was probably in considerable part responsible for making the elementary school a "drill school" and for deferring the exercise of higher mental processes until the secondary school period.

The evidence, however, suggests that children — even preschool children — can reason. Investigations have shown that children as young as three years can discover a principle and apply it to new situations. Five-year-old children have been able to construct a route to the goal in a maze problem by integrating two isolated experiences.¹ Competence in problem solving increases gradually with age. Older children can solve more complex problems, state their conclusions in

better language, and formulate the reasons for their solutions more cogently. Adults can perform these operations even more effectively. But although young children are limited by immaturity both in inner growth and in experience, they are capable of rational behavior on their own level. In fact, if allowances are made for differences in knowledge, experience, and linguistic development, it appears that children and adults reason in essentially the same fashion. The errors which young subjects make are not different in kind from those which adults exhibit when they meet very unfamiliar situations.²

We may conclude, then, that the ability to reason, including the ability to discover relationships and to use previous experience in meeting new situations, develops constantly. This suggests that there should be no level of education where learning should be exclusively devoted to the acquisition of facts or entirely given over to reflective thinking. The two processes should develop together. It is becoming common to see intermediate grade children in the modern elementary school start with a significant question; search for relevant facts in several sources; evaluate the authoritative adequacy of these sources; organize their information; and bring the facts to bear upon their problem. This is the kind of activity which elementary schools should increase by large amounts, provided the situations can be made meaningful and useful to children at the time

Difficulties in Improving Reasoning Ability. It is admittedly difficult to learn how to think; the person who acquires the ability must do it through hard work. It is true, too, that psychologists have discovered all too little about the higher thought processes and their education. This lack of evidence on the nature of reasoning and the improvement of problem solving makes it difficult for the teacher to guide pupils in the development of critical thinking. But in spite of pessimism concerning the educability of the higher mental processes, the lack of scientific data, and the difficulty of learning

and teaching how to think, there are at least common-sense approaches to the improvement of reasoning which give promise of value. Before discussing these procedures, however, we should define problem solving more explicitly, and explore the data on the nature of reasoning which are available in the psychological literature.

THE CHARACTERISTICS OF PROBLEM SOLVING

What Is a Problem? A problem exists for an individual when he has a definite goal that he cannot reach by the behavior patterns which he already has available. Problem solving occurs when there is an obstruction of some sort to the attainment of an objective. If the path to the goal is straight and open, there is no problem.³ It is when one has to discover a means of circumventing an obstacle that the stage is set for reasoning. In arriving at a solution of the situation, it is necessary to select out of previous experiences those which are particularly relevant to the present task, and to organize these phases of previous learning into a new pattern of response. We can say, then, that the process of problem solving has the following features: (1) it is directed by the goal and a perception of the essential relationships in the situation; (2) it is selective, for one of the keys to successful solution is the ability to recall relevant experiences; (3) it is insightful, for it involves the reorganization of relevant experiences into a complete solution, with particular reference to means-end relations; (4) it is creative, for it results in an essentially new construct—a reorganization of ideas or movements or both; and (5) it is critical, for it is necessary to evaluate the adequacy of hypotheses or tentative solutions.

Reasoning and Problem Solving as Forms of Learning. Reasoning has sometimes been distinguished from learning. However, this differentiation is not valid unless learning is defined as the acquisition of specific associations in which the element of discovery of the appropriate response is at a minimum. Actually, as we have pointed out previously,

learning situations differ greatly in the amount of discovery which is necessary. We may think of these differences as being arranged along a continuum. At one end of the scale we would locate what is known as rote learning, one example of which is the memorization of a list of nonsense-syllables. Another example is the traditional experiment on conditioning, in which a certain situation is connected with a certain response, not because of any intrinsic relationship between the two, but merely because the two occur together. Whenever the teacher identifies the situation for the pupil, prescribes the response, and directs him to repeat them together, the classroom introduces learning tasks in which discovery is certainly an inconspicuous feature.

Types of Reasoning and Problem Solving. Farther along the scale are the learning activities in which the teacher explains the reasons for a conclusion with the purpose, not of having the pupil discover them entirely by himself, but of having him understand the relationships which are presented. Thus a teacher of economics might explain why the financing of a greatly expanded defense program through high taxation and the sale of bonds to private investors rather than banks would tend to retard inflation. Much of our learning must necessarily take the form of understanding relationships that scholars have discovered. One of the purposes of education is to profit from the experiences of others instead of having to learn everything at first hand. However, there is a considerable element of discovery in comprehending what others have learned. The process of getting the meaning of an expository account is itself an example of problem solving. But merely understanding the results of the thought processes of others will not suffice to teach the pupil himself how to reason effectively. We must give him the opportunity to think for himself.

At the other extreme on the discovery scale are those situations in which the individual, though perhaps given certain leads or cues, must find the solution for himself. This means

that he will have to explore the problem extensively in order to define it explicitly; search systematically for previous experience which may aid in the solution; locate additional essential information; formulate possible solutions; and determine whether these hypotheses will actually satisfy the demands of the problem.

Examples of Teaching Planned to Improve Reasoning.

A fuller understanding of the nature of reflective thinking has caused many changes in educational procedures. We found out that merely memorizing the proofs of theorems in geometry did not teach students to solve new problems independently in geometry itself, much less in other fields. As a result, textbooks in geometry now seldom set forth a complete proof, but leave many parts to be filled in by the learner, and put much more emphasis on the solution of "originals" and of practical problems. Instead of having students simply learn the contents of a text in history or social problems, there is now a tendency to ask them questions which can be answered by using the material in the text and in other sources but not by quoting or paraphrasing the statements in the books. Laboratory work in science, which too often has consisted mainly of following a manual of directions in routine manner, is now more likely to consist of real problems, many of them of practical value, which provide experience in the scientific procedures of observing, recording, and interpreting results which have not already been outlined in the textbook or manual.

ACTIVITIES INVOLVED IN REASONING AND PROBLEM SOLVING

Reasoning Compared with Other Forms of Learning.

In our discussion of the general nature of learning, we emphasized primarily what happens when the individual encounters a rather complicated or difficult task. We interpreted successive attempts at solution as a process of "approximation and correction." The importance of exploring or manipulating

the problem as a means of throwing its essential features into bolder relief was discussed. The way in which the perception of the situation or the definition of the task guides the trials which are made was explained. The selection and rejection of responses in terms of their means-end relations was stressed as the critical aspect of the learning process. It is apparent, then, that we do not separate learning and problem solving, but look upon reasoning as one of the higher forms of learning. In fact, it is entirely appropriate in many situations to speak of learning *by* reflective thinking.⁴ The movement to increase this kind of educational activity is one of the most important changes in modern schools. The purpose of stressing problem solving, as we shall see later, is not only to make particular discoveries, but also to acquire efficient general methods of attacking difficulties.

Types of Analysis of the Process of Reasoning. Relatively few psychological investigations of the actual process of problem solving or reasoning have been made. A good many of those which are available have to do with the solution of puzzles rather than with the forms of understanding and reasoning which should constitute the major portion of school-work. The best interpretation of the experimental work has been made by Woodworth, and we shall take advantage of his treatment.⁵ The most comprehensive logical analysis of "a complete act of thought" has been made by Dewey.⁶ It has been said that Dewey has not described how we actually think but how we should think. In any event, his discussion is extremely valuable, and it will be profitable to combine the results of scientific investigation and logical analysis.

BECOMING AWARE OF THE PROBLEM

Reasoning Begins with a Felt Difficulty. Dewey has emphasized the fact that a problem is a *felt* difficulty. There are obviously all kinds of problems about us of which we are unaware. Furthermore, we may be more or less conscious of the existence of important problems but take little interest

in them because they do not appear to be related to our own needs, welfare, or intentions. It is true, too, that what is a problem for one person may be little more than a routine matter for another. Problems arise for an individual when he encounters some obstacle to the satisfaction of *his* wants or the attainment of *his* goals. One of the reasons why the school is often ineffective in stimulating an aggressive attack upon "problems" or in teaching methods of problem solving is that the difficulties it creates for pupils are little more than assigned tasks. In many instances, the result is not to teach children how to solve these "problems" but how to do as little work as possible without offending the teacher.

Awareness of Problems Depends upon Experience. The number of problems of which we are aware and the seriousness with which we respond to them are determined in considerable part by the extent of our information and experience in given fields. The complexity of the farmer's problems is seldom appreciated by the urban dweller who knows little about the hazards of climate, the constitution and depletion of soils, the raising of live stock, and the immediate and remote factors which determine the balance of profit or loss. The businessman who has only a few employees may know very little about the labor problems of a firm with a large personnel. Any one person may little realize how his own welfare depends upon the well-being of others, and therefore be unconcerned about the problems other people face. The more one knows about any subject, the more numerous the problems in it become. This suggests, first of all, that sensitiveness to problems can be stimulated by extending the individual's experience. The school has the responsibility for doing this directly through a wide range of purposeful activities and vicariously by extensive reading.

Helping the Pupil "Feel" a Problem. The dependence of problem-awareness upon experience also suggests the importance of relating pupils' work in literature, science, social studies, and other fields to their own and their parents

activities and to the life of the community. Active inquiry comes with thinking about one's own problems, not the teacher's. If the teacher wants the pupil to work on the problems he considers important, he must somehow get the pupil to make them his own. A college instructor in political science who had failed to get his class interested in the general problem of the extent of government control over the individual got a useful cue for changing his approach from a student who stopped after class to ask questions about his rights and duties under the selective service law. The instructor used this situation as a means of raising the issues contained in the general problem, and stimulated an entirely different response from the class.

Dewey has stressed the subjective character of the problem situation in the following passage:

. . . the origin of thinking is some perplexity, confusion, or doubt. Thinking is not a case of spontaneous combustion; it does not occur just on "general principles." There is something that occasions and evokes it. General appeals to a child (or to a grown-up) to think, irrespective of the existence in his own experience of some difficulty that troubles him and disturbs his equilibrium, are as futile as advice to lift himself by his boot-straps.⁷

DEFINING THE PROBLEM

First Step in Defining the Problem. Success in problem solving depends in no small degree upon the extent to which one can recall from all that he has previously learned what conceivably might be useful in the novel situation. What are the factors which determine whether he will be successful in calling up these experiences? First of all, he must take an active attitude toward the problem, make a deliberate effort to recall relevant facts. Second, perception of the essential features of the problem provides the stimulus for the recall of previous experience. If one has only a vague notion of what the situation is all about, his ideas are not likely to be very prolific. If, on the other hand, he explores and

examines the problem until he knows what is asked for and what is given, this knowledge of the situation may evoke a larger number of useful suggestions and also more pertinent ones.

Woodworth quotes Helmholtz, who made many contributions to the sciences of psychology, physiology, and physics, on how thoroughly he familiarized himself with the problems he was working on. To formulate fruitful hypotheses, Helmholtz said that "It was always necessary, first of all, that I should have turned my problem over on all sides to such an extent that I had all its angles and complexities 'in my head' and could run through them freely without writing."⁸

The Selective Character of Problem Solving. Problem-solving behavior is always selective. First of all, the understanding of the task at hand determines what is remembered from similar occasions or what attempts at solution are made. Second, the more accurately and definitely the problem is defined, the better criteria the learner has for evaluating the appropriateness of the responses he makes to the situation or the ideas which he brings to bear upon it. If his automobile stops, he will consider one set of factors if he thinks the difficulty is with the ignition, and another if he thinks the trouble is in the carburetor. It doesn't help the teacher a great deal merely to know that a child is having trouble in learning to read. Only by determining diagnostically the child's specific difficulties is it possible to know what data to collect on the case and how to proceed in remediation.

Keeping to the Problem. The importance of defining the problem fully and exactly is emphasized by the fact that one of the best ways to beat an opponent in an argument is to get him off the track. In the formal debates which were once so popular in schools and colleges, one of the common stratagems was to try to confuse the issue and get the opposing side to spend its time on irrelevant or unimportant questions. The only way to conduct a good discussion or argument is to speak directly to the problem. It is instructive to note how

far a discussion often wanders from the subject with which it began. Rambling comments only befog the principal issues and obstruct group thinking. This is why a good chairman brings the discussants back to the main points when they are prone to wander. For the same reason, the teacher often leads a pupil back to the problem by asking, "What was the question you were asked?" or "What was the topic you were to discuss?"

Many teachers who attempt to use the "problem method" are not successful because they present very broad issues which are so complex that students cannot devise a plan for working on them systematically. It would be relatively futile, for example, to ask students to explain what causes inflation without helping them first to determine the principal aspects of the problem. Questions as to what forms inflation may take, what effect the amount of production of consumer goods would have, what the influence of rising employment and wages would be, what effect government borrowing through the banks would have, and many more would need to be considered in defining the problem sufficiently to make study and reflection fruitful. Time devoted to laying out the field of the problem thoroughly is not wasted.

LOCATING, EVALUATING, AND ORGANIZING INFORMATION

The Importance of Collecting Sufficient Data. To provide the basis for formulating hypotheses, or tentative solutions of a problem, it is sometimes sufficient to assemble the information one already possesses. Usually, however, difficult situations call for the collection of new data. The solution of a problem can be no better than the facts upon which it is based. It is probable that errors in thinking are due more to lack of sufficient data than to any other one cause. These difficulties are illustrated in our endeavor to deal with social issues.

The problems which society faces today are so complex that an enormous amount of information is necessary for

intelligent consideration of social, economic, and political issues. The number of citizens who possess the necessary information for making sound judgments on public affairs is probably distressingly small. The writer remembers a group of men who regularly met in the back room of a village store to discuss the issues of the day. This society was known as the House of Lords because it solved, often in rather short order, most of the complex problems which were before the legislature and the Congress, and usually arrived at its conclusions without benefit of much relevant information. It is possible, for that matter, that legislators themselves often vote on crucial issues without adequate factual analysis. Horn is undoubtedly right when he declares that "with respect to accurate knowledge, the public mind appears to be sadly undernourished."⁹ He goes so far as to conclude, from studies of what students and adults know, that "(a) the average individual does not now have a sufficient background of accurate information to think effectively about modern problems; (b) that he does not know the sources of dependable information; and (c) that he could not read these sources with understanding even if he found them."¹⁰

Cultivating Respect for Accuracy and Thoroughness of Evidence. The danger of having students "solve" difficult problems is that it is easy to encourage superficial thinking. In many instances, the essential purpose of education may be to impress students with the complexity of contemporary issues. In any event, the school has no excuse for encouraging or tolerating ill-considered statements, half-baked conclusions, or willingness to generalize without the necessary data. Teachers should attempt to inculcate respect for evidence, an attitude of thoroughness in searching for facts instead of a tendency to be content with insufficient and inaccurate information, a critical but constructive attitude, and an effort to avoid prejudice.

The Need for Thorough Exploration and Organization of Facts. One often runs across the notion that the creative

mind does not need a great amount of information, but gets its insights through some magical, intuitional process. But the evidence and the testimony are very much to the contrary. Inquiry into the methods of work of chemists and inventors has shown that scientists actually assemble a tremendous amount of information on their problems, and make systematic efforts to organize and interpret these facts. The informants reported that they always explored a problem at great length and completely saturated their minds with the subject before trying to arrive at a solution.

Teaching Techniques of Obtaining and Organizing Information. The most important phase of the reasoning process is the discovery of relationships. Reasoning is therefore closely related to what we know as intelligence. Perhaps this association is responsible for the fact that we can say so little about the improvement of problem-solving ability through educational means. But it is possible to learn how to use more efficiently certain intellectual tools which are of great value in thinking. For example, the skills and abilities that are taught in a modern work-type reading program are indispensable reasoning tools. As a matter of fact, the act of comprehension in any type of reading is itself a process of reasoning. Horn points out that reading involves selection of ideas, the making of inferences or hypotheses, the evaluation of these inferences, and the organization of ideas into a valid conclusion.¹¹ These activities are closely parallel to those which are found in an analysis of problem solving. The affinity of reading and reasoning is even more fully indicated by Thorndike in the following summary:

Understanding a paragraph is like solving a problem in mathematics. It consists in selecting the right elements of the situation and putting them together in the right relations, and also with the right amount of weight or influence or force for each. The mind is assailed as it were by every word in the paragraph. It must select, repress, soften, emphasize, correlate and organize, all under the influence of the right mental set or purpose or demand ¹²

Furthermore, reading should be more than comprehension of the author's meaning. It should involve reflection on these ideas in the form of an appraisal of their validity, a consideration of their implications and outcomes, and an attempt to apply them in concrete situations. Thus reading is both a process and a tool of reasoning.

The Value of Certain Types of Reading. Certain abilities in work-type or study-type reading are of especial importance in securing and organizing data on a problem. It is essential, for instance, to learn what are the best sources for locating information on a wide range of topics. Where to find data on rainfall and other climatic conditions, on population trends, on exports and imports, and on governmental services and activities, are examples of the knowledge which should be acquired throughout the pupil's school experience. In a recent bulletin on the testing of learning abilities in the social studies, the following item is suggestive of the information on sources which should be acquired:

Which of the following would be most appropriate as a reference in writing a long theme on the subject of "The Monroe Doctrine"?
(1) Bartlett's *Familiar Quotations*, (2) *Who's Who among North American Authors*, (3) *Encyclopedia Americana*, (4) Putnam's *Historical Atlas*, (5) Haggard's *Devils, Drugs, and Doctors*.¹³

The Use of Reference Books. How to use sources once selected involves a large number of special skills, such as how to locate material through the index and the table of contents, and how to use dictionaries and other reference books. The bulletin on testing techniques in the social studies mentioned above emphasizes the interpretation of tabular data; reading of circle, bar, and profile graphs; knowledge of common abbreviations in historical material; and interpretation of statistical data.

Evaluation of Information. To locate sources and to extract information from them is not enough. It is essential to evaluate the adequacy of these sources. One must make judgments concerning the accuracy and completeness with

which the data are likely to be presented, and also the reliability of the material. It is important, for example, in using books to be sensitive to the sort of bias which they may implicitly contain. Sometimes, but not always, this can be determined by reading the author's preface. The student should be conscious of the editorial policies of such magazines as the *New Republic*, *Nation's Business*, the *Saturday Evening Post* and the *Nation* when he is reading either editorials or articles in these journals. He should consider, with respect to each problem he is studying, which of several available sources might be the most accurate, complete, and unprejudiced or how, by using several references, he could secure a more complete fund of information as well as all points of view on the subject. Here is a sample test item to get at such information, from the bulletin on the social studies. The pupil is directed to rate the reliability of the following sources of information concerning the battle of the Marne, September 1914: (a) an account which contrasted the spirit of the heroic boys of the Allies and the ponderous foolhardiness of the enemy, (b) an account compiled from material taken from the reports of opposing commanders, (c) an account appearing in a journal printed in a neutral country.

Abilities Important in Evaluating Information. Other abilities which are important in obtaining and evaluating information on social studies problems include the following: the ability to distinguish between sources and secondary materials; the ability to discriminate between statements of fact and statements of motive; the ability to distinguish statements of fact from statements of opinion; the ability to judge the pertinence of questions and the relative significance of issues with respect to a given problem.¹⁴

The Value of Practice in Outlining. Since, in the actual situation, the data necessary for solving a problem are not presented in ready-made fashion in a textbook, pupils should have a great deal of experience in going to multiple sources for data. In this process, they should receive instruction in

only on how to obtain reliable information, but also on how to assemble and organize it so that it will throw light upon the essential questions they are considering. This means that they must learn how to summarize information, how to classify it with respect to major topics, and how to draw valid conclusions from it. One of the best aids in organizing information is the outline. Many people do not know how to outline; too often they merely make a list of points. But a succession of items is not an outline, for it lacks proportion, emphasis, and meaningful pattern. Outlining should be taught as one of the necessary tools of learning.

Skills in Locating, Evaluating, and Organizing Data Can Be Learned. All of the abilities in locating, evaluating, and organizing information which we have discussed can be learned. As in the case of other kinds of achievement, the number, difficulty, and complexity of tasks which are mastered will depend upon the intellectual capacity of the learner. But we can at least teach pupils to be more systematic in their mental work than they would become without guidance. Therefore, the abilities in question should not be left to incidental learning, but should be the subject of systematic instruction. Improvement in these mental tools is one of the most effective ways to increase ability to solve problems.

DISCOVERING RELATIONSHIPS AND FORMULATING HYPOTHESES

In Dewey's analysis of thinking, the third step is the formulation of inferences or hypotheses from the data. In the actual process of reflective thinking, of course, one does not complete the definition of the problem and the gathering of data before he indulges in any hunches or inferences concerning the solution. These activities go on together.

The Nature of the Process of Inference. Though making inferences is the most critical phase of problem solving, its psychology is not very well known. Hypotheses depend upon the perception of relationships among the data that have been

or are being assembled on the problem. Not any type of relationship among the facts and principles, of course, will serve. The particular relationships which are useful are determined by the nature of the problem, by the question to be answered. But how these relationships are discovered is still a rather mysterious matter. Because the psychological processes involved in inference are obscure, practical means of improving this aspect of reasoning cannot be suggested as confidently as can methods of improving skill in locating and organizing data.

Suggestions for Securing Fruitful Inferences. Saturating the mind completely with all the important features of the problem seems to be the necessary background for fertile inference. Then the reasoner should go systematically about the process of discovering relationships. The more aggressively one searches for possible solutions, the more likely fruitful inferences are to appear. There is a considerable amount of trial and error or, as we have chosen to call it, approximation and correction, in this procedure. In solving mechanical puzzles, much of this exploration and trial is overt, but those who are most skillful are the ones who, instead of spending all their time in actual manipulation, conduct a large part of this maneuvering ideationally in connection with studied efforts to see pertinent relationships. Although successive trials in purely verbal problems are mainly covert, the process of approximation and correction is still a characteristic and important feature of reasoning. As we have explained previously, the purposeful manipulation of ideas may be the means of restructuring the situation, changing the layout of the field so that relationships which were difficult to perceive become more apparent.

The Importance of Persistence in Seeking Hypotheses. Failure to find a solution often results from giving up too soon. Many attempts may have to be made before the correct solution appears. Sometimes the right hypothesis will emerge as a sudden "flash" after a considerable period of exploration.

In other instances, insight may emerge much more slowly and gradually. Often, the principle involved may have to be formulated by working back from the solution to the steps which constituted the way out of the difficulty or the means of reaching the goal. The answers to difficult questions do not ordinarily "pop out" immediately. They are more likely to result from systematic variation in trying out leads and cues.

The Importance of Flexibility. Flexibility of approach is a crucial factor in reflective thinking. Poor workers often stubbornly hang on to a fruitless cue while more efficient persons are trying new leads or exploiting different methods. In attempting to solve a mechanical puzzle, one of Ruger's¹⁵ subjects spent ten hours on one line of attack. At the end of this period, he was requested to try another attack, but when observed again an hour and a half later, he was still working on the same futile cue. The same sort of inflexibility is often found in working with mathematical problems, with practical situations, or with social issues.

Danger of Resort to Stereotypes. Unfavorable problem-solving attitudes often take the form of stereotypes, such as the notion that the first principle of public finance is to balance the budget under all conditions, or that all the ills of business are caused by the intervention of governmental agencies. Many people show a tendency to solve new problems by recourse to a relatively few well-worn assumptions which may no longer work. The attempt to change an opinion, to venture a new solution, is usually somewhat disturbing and perplexing in much the same way as an attempt to speed up in reading or adding or to adopt a new method of typewriting. The ease and security that result from standing by old habits of thought and action oppose the tendencies to break away, to develop and try out new possibilities.

The Importance of Open-Mindedness. Originality, however, depends in considerable degree upon habits of open-mindedness, of keeping alive to a wide variety of stimuli, and of remaining sensitive to all of the suggestions that a situation

may contain, rather than thinking only along the line most readily suggested. On the other hand, a tendency to flit from one to another feature of a problem in superficial fashion or to discard one line of action as soon as another comes to mind is as serious a fault as sticking to a few cues too tenaciously. Systematic formulation and evaluation of hypotheses is the most promising sort of problem-solving behavior.

The Value of an "Incubation" Period. Sometimes, after a period of intensive work on a problem, it pays to leave the material and do something else for a while. When returning to the matter later, it may be possible to take fresh leads, or to see some cue which had been overlooked. Some writers believe that a period of "incubation" is favorable to the emergence of new relationships or insights, not only because one may take a new approach after a rest period, but also because there may be "unconscious" work on the problem during this time. It is true that flashes of insight do sometimes occur suddenly in the midst of other activities, which suggests that the problem, though not in the center of consciousness, was not "out of mind."

The Role of "Atmosphere Effect." The psychology of the thought processes is often distinguished from logic. The former is concerned primarily with the *process* of reasoning, and the latter with the correctness of the *results* of reflective thinking. Although such a differentiation is useful, the two approaches to the study of reasoning are really complementary. Within the psychological factors at play in the thinking process, one can often discover reasons for incorrect conclusions. One of these factors has been called the "atmosphere effect." It has been discovered that the total impression, or tone, or trend of a problem situation may induce a set in the individual which disposes him to accept or formulate conclusions in conformity with the general atmosphere of the situation as a whole, even though such inferences may be incorrect. One of the simplest illustrations of the atmosphere effect is the tendency to use a plural verb in a sentence in

which the subject is really singular but gives the general impression of plurality. The following sentence is a case in point: "The laboratory equipment in these situations were in many instances essentially the same as those used before."

Atmosphere Effect and the Syllogism. Atmosphere effect has been studied experimentally in formal syllogistic reasoning. Subjects untrained in formal logic were asked to accept or reject the conclusions in such exercises as the following:

If all x 's are y 's,
And if all z 's are y 's,
Then all x 's are z 's

Although this conclusion is invalid, fifty-eight per cent of the subjects accepted it. The positive atmosphere in the premises apparently "set" the subjects to approve the universal affirmative conclusion.¹⁶

In another instance, the subjects were asked to supply the conclusion for the following syllogism:

All x 's are y 's;
And all x 's are z 's;
Therefore — y 's — z 's.

Although the only valid conclusion is that some* y 's are z 's, seventy-eight per cent of the subjects concluded that all y 's are z 's. Again, the total impression made by the premises disposed the subjects to draw a conclusion consistent with the dominant atmosphere.¹⁷

Atmosphere Effect in Everyday Thinking. Atmosphere effect probably operates in many concrete situations as well as in the formal exercises illustrated above. For example, we are often made uncritical of assertions or conclusions when they are presented with other statements toward which we are favorably disposed or with which we already agree. Sometimes this device is used to the extent of dressing up the presentation of an idea with an imposing array of data which may be correct in themselves but essentially irrelevant to the

* That is, at least some, and possibly all

conclusion the author wants his readers or hearers to accept. The phenomenon of atmosphere effect suggests that we should train students to analyze situations carefully, to make a studied effort to detect general impressions that may be misleading, and to maintain a critical attitude. Only by acting warily can one arrive at sound conclusions or evaluate inferences and proposals made by others.

EVALUATING HYPOTHESES

Three Steps in Evaluating Hypotheses. Implied in the principle that effective thinking depends upon a systematic effort to perceive relationships and state hypotheses is the necessity of evaluating these tentative solutions rigorously. This means, first, that one should determine whether the conclusion completely satisfies the demands of the problem. Second, one should find out whether the solution is consistent with other facts and principles which have been well established. Third, one should make a deliberate search for negative instances which might throw doubt upon the conclusion. These procedures are facilitated not only by the ability to locate and organize data effectively, but also by attitudes of suspended judgment and critical evaluation. Long ago Binet declared that intelligence included the ability to take and maintain a definite direction, to adapt means to these ends, and to exercise the habit of *autocriticism*. The habit of being critical of one's own inferences is as important as being critical of the judgments of others.

Becoming Aware of One's Prejudices. One of the most important means of stimulating students to be critical of their own thought processes and conclusions is to make them aware of their emotional and ideational prejudices and assumptions. Some recent studies of the influence of emotional and ideational stereotypes have accentuated the necessity of this kind of training. One of the investigations was designed to discover whether emotional reactions to people's photographs influenced the subjects' judgments of the nationalities of the

persons pictured. In February fifty college students in a class in social psychology were asked to rate fifteen nationalities on a nine-point scale of favor-disfavor. In March the students were shown sixteen photographs of persons they did not know. Although these photographs represented all of the fifteen nationalities to which the students had reacted previously, no mention was made of nationalities in presenting the pictures. The students were asked to rate each of the photographs on a nine-point scale of favor-disfavor, and write out the reasons for their reactions. In April the subjects were given the same pictures and a list of the fifteen nationalities which they had rated in February, and were directed to judge the nationality of each photograph.

The results showed that the students were unable to make an accurate judgment of the nationalities of the photographed persons, but that they tended to identify the photographs they disliked with the nationalities they disliked. This procedure may have been due to one of two ways of thinking: "I do not like this person, and I do not like Italians, therefore I shall class him as an Italian," or "This man looks like an Italian, and I do not like Italians, so I shall give this person a low rating." The author concluded from the subjects' reports that the former relationship was the more likely one. Actually, of course, the subjects probably did not make their reactions in the explicit verbal fashion indicated above; their responses were probably less deliberate and more implicit.

Difficulties in Eliminating Prejudices and Stereotypes. A stereotype has been defined as a preexisting attitude which is "so strong and inflexible that it seriously distorts perception and judgment, rendering them inappropriate to the demands of the objective situation." The import of the investigation just summarized seems to be that stereotypes may be based not only upon ideational content, but also upon deep-seated emotional dispositions. Often the stereotyped reaction is occasioned by a complex of emotional and ideational factors. The author of the study summarized above concluded, there-

fore, that rational consideration of unfounded assumptions and prejudices may be insufficient to eliminate them. In modifying prejudices against races and nationalities, for example, it may be necessary to reeducate emotional responses as well as to provide a more adequate factual background for judgments.¹⁸

A Study of Stereotyped Thinking. The fashion in which an individual's organization of beliefs, attitudes, and values determines how he will respond to situations was the subject of an investigation of the influence of political "frames of reference" on the interpretation of ideas. Three groups of college students, one favorable to the New Deal, one neutral in attitude, and one unfavorable, were the subjects. They were read a ten-minute speech concerning the New Deal in which half the material was favorable and half was adverse. After the reading, a multiple-choice recognition test over the speech was administered. Half of the test items were answered in the speech in a manner favorable to the New Deal and half were answered in an unfavorable manner. Two of the three choices on each item were true and false with respect to the content of the passage. The third choice offered the subjects an opportunity to rationalize their answers (make them consistent with what they already believed) if the right answer was opposed to their own frames of reference but was wrong according to the passage. The subjects were told merely that the purpose of the experiment was to discover how much of the speech they could remember after hearing it read.

Attempting to Become Objective in Thinking. The results showed that, instead of accepting correct answers which were opposed to their own beliefs or biases, the subjects chose the alternative which permitted them to rationalize the conflict. The investigator concluded that the data were consistent with other studies which show that "it is almost impossible to expect objectivity and accuracy in perception, learning, remembering, thinking, etc., when ego-involved frames of reference are stimulated."¹⁹ We should probably

have to agree that we can never attain complete objectivity in thinking, but it may be possible to increase our consciousness of emotional and ideational sets which obstruct rational consideration, and thus to protect ourselves in part from their influence. The effort to stimulate such an awareness of attitudinal determiners should be a deliberate phase of teaching how to think.

APPLYING THE SOLUTION

The final step in a "complete act of thought" is the application of the solution. If the problem has been one in the construction of a radio, the repairing of a canoe, the construction of a piece of scientific apparatus, or the completion of a mechanical puzzle, the solution is ordinarily put to work in due course. But the conclusion of a purely intellectual problem often is not put into effect so certainly. We often fail to see the relationship of a general principle to concrete situations. We also frequently neglect to change our actions to make them conform to the results of verbal reasoning. Finally, we may disregard the bearing of new ideas upon beliefs or judgments which we have previously formed. One of the essential steps in reflective thinking, therefore, is to apply new principles to specific cases, to change conduct in the light of intellectual considerations, and to reorganize and systematize ideas as new conclusions are reached. These processes should be integral purposes of problem-solving activities conducted under the school's auspices.

FORMULATING METHODS OF REASONING AND PROBLEM SOLVING

Methods of Thinking Should Be Learned. Guidance and practice in reasoning should culminate finally in a conscious formulation and utilization of *methods* of thinking, or systematic problem-solving procedures. Teachers of geometry often justify that subject as a means of training students in reasoning, not only in geometry, but in other fields as well.

To the extent to which learning in geometry itself is a process of rote learning, the claim is obviously unsound. Furthermore, even if students learn to solve mathematical problems efficiently, they may not acquire thereby any greater ability to reason in general. Logically, it would seem that the only way to use geometry as a means of cultivating methods of reflective thinking of wide applicability would be to make students conscious of method as such, to generalize the procedures and attitudes involved, and to gain experience in applying these processes in a variety of problems. Recent experimental evidence bears out this hypothesis.

Evidence that Teaching May Improve Methods of Reasoning. The effect of different emphases in teaching geometry on scores on a reasoning test was investigated by comparing the gains of three groups: an experimental group composed of pupils in classes in which a definite attempt was made to study basic principles of reflective thinking; a geometry control group, composed of pupils in classes in which there was no explicit emphasis on methods of thinking or application of the kind of reasoning done in geometry to situations in other fields; and a nongeometry control group consisting of pupils who were not enrolled in geometry and who had had no previous instruction in the subject. The groups were equated on the basis of chronological age, I.Q., and initial scores on the reasoning test. The reasoning test used to measure gains was constructed on the following pattern. A specific problem was presented, followed by a list of several possible conclusions from which the student was to make a choice. The student was then required to select from a list of statements or "reasons" the ones which he thought supported the conclusion previously checked. The test situations were selected from other fields than mathematics, and most of them concerned controversial matters.

In the experimental classes, a systematic study was made of (1) postulational (if-then) thinking, (2) the importance of defining key words and phrases, (3) generalizing from data,

(4) reasoning by analogy, (5) detecting implicit assumptions, (6) the nature of indirect proof, and (7) the significance of inverses and converses. "The essential characteristic of the experimental method," according to the experimenter, "was the conscious attempt to make pupils more critical in all of their thinking by the study of thought patterns both in geometry and outside of geometry." The mean gains in reasoning test scores for low, medium, and high ability divisions of the three groups were as follows.

<i>Group</i>	<i>Mean Gains</i>		
	<i>Low Ability (I.Q.'s below 100)</i>	<i>Medium Ability (I.Q.'s from 100 to 119)</i>	<i>High Ability (I.Q.'s of 120 and above)</i>
Experimental	24.2	25.2	30.7
Geometry control	5.0	8.3	13.4
Nongeometry control	5.1	5.1	4.0

It was concluded that generalized methods of reflective thinking can profitably be taught, and that "even what is commonly regarded as superior geometry teaching has little effect upon pupils' behavior in the direction of reflective thinking unless definite provisions are made to study methods of thinking as an important end in itself."²⁰

Critical Thinking Should Be Stressed in All Fields. It would be unwise to infer from this experiment in geometry that a general course in logic or reflective thinking should be sufficient to develop the ability to think critically in all fields or in all kinds of life situations. From all that we know about learning and the transfer of training, it seems much safer to assume, for the present, as the authors of the recent monograph on the testing of study skills in the social sciences have done, that "critical ability and reflective thinking tend to develop along with knowledge and understanding in separate fields rather than as universals or generally transferable values."²¹ Training in critical thinking should, therefore, become one of the specific purposes of instruction in all fields. The same writers realize that critical abilities cannot be assumed to

develop incidentally. They take the position that "the intelligent teacher has realized the necessity of training students in methods of acquiring, evaluating, and expressing social learning as a corollary to developing their knowledge and understanding of the materials of the social sciences." ²²

REASONING AND PROBLEM SOLVING IN THE AREA OF PROPAGANDA

The emphasis on critical thinking which has appeared recently in the educational literature is a commendable one. However, there has been a tendency to look for easy means of developing critical attitudes and analytical methods. This has been especially apparent in discussions on analysis of propaganda. Some people have confused critical facility with the ability to identify methods of persuasive appeal. Teaching material has been prepared to train students to recognize such devices as (1) name-calling — discrediting an individual by disparaging epithets, such as "communist," or "tory"; (2) glittering generalities — using vague but high-sounding and favorably toned phrases and statements; (3) transfer technique — identifying something with individuals or institutions which have great prestige; (4) testimonials — securing endorsements from prominent people; (5) plain-folks device — appealing to the sentiments and activities of the "common people"; (6) card-stacking — misrepresenting the facts, telling only part of the story, or otherwise deliberately distorting the truth; and (7) the band wagon — asserting that something has wide general approval or that "everybody's doing it." ²³

The Effects of Detecting Methods of Propaganda. Will learning to detect methods of the propagandist assure the critical evaluation of the ideas or the programs that are being promoted in such fashion? Hardly. First of all, if these devices are used subtly, it is often impossible to identify them unless one is familiar with the subject matter of the discussion. Second, the validity of a proposition cannot necessarily be

determined by analyzing the methods by which it is presented. Third, while it should be possible to identify and minimize persuasive appeals with respect to a given topic or series of problems, we do not yet have evidence that this ability will transfer in sufficient measure to other kinds of situations or contents. Fourth, one may be able to detect propaganda techniques and still be influenced by them. This was shown in a recent investigation on the effect of persuasive films on students' attitudes. Seniors in journalism, who had had instruction in methods of propaganda, were shown a twenty-minute persuasive film which urged workers to organize into labor unions. Before and after the film was shown, the students were given a test of attitudes related to the labor problems treated in the moving picture. They were also given, after seeing the film, a test to determine whether they could perceive and analyze the persuasive appeals which had been used in the picture. The results revealed that there was a shift in attitude in the direction intended by the moving picture, and that the students who were most able to analyze the propaganda techniques were no more resistive than the others to the influence of the film on their attitudes.²⁴

Further Evidence on the Effects of Detecting Methods of Propaganda. Another investigation, using textual material rather than films as the medium of appeal, also failed to verify the assumption that instruction in methods of propaganda will protect students from the influence of persuasion. The subjects were pupils enrolled in the eleventh and twelfth grades in twenty pairs of social studies classes in seventeen high schools. One class in each pair was designated as the experimental class, and the other considered as a control class. The pupils in the experimental classes spent six days studying a unit of instruction called "Public Opinion and Propaganda" which had been prepared in the manner suggested in the publications of the Institute for Propaganda Analysis. The pupils were told that this unit was a regular part of the course. The control classes carried on their ordinary class work; they received no

instruction on propaganda techniques. Four weeks after the beginning of the work on the instructional unit, both experimental and control classes were given the Peterson-Thurstone scale of *Attitude toward Capital Punishment*, Form A, and an achievement test measuring knowledge concerning capital punishment, prepared especially for the experiment. Immediately after taking the tests, the pupils read a selection which had been prepared to present propaganda in favor of capital punishment — "Why Capital Punishment Is Necessary." As soon as they had read this material, they were given Form B of the attitude scale that had been used as a pretest. Two weeks later all the classes were given the same form of the attitude scale again to get some indication of the permanence of the attitude changes which had occurred as a result of reading the persuasive material.

The results of the experiment showed that, although only the experimental groups had studied the unit on propaganda devices, both control and experimental pupils shifted attitudes significantly after reading the selection on the necessity of capital punishment. Furthermore, there was no significant difference, either in the immediate or the delayed reactions on the attitude scale, in the shift which the instructed and the noninstructed groups made. The relationship between shift in attitude and both intelligence and knowledge concerning capital punishment was negligible.

Osburn, who conducted and reported the investigation, concluded that the results strongly suggested "that attempts to teach resistance to propaganda with respect to social issues by emphasis only on the 'form' in which propaganda commonly appears will be unlikely to succeed." He suggested the hypothesis for further experimentation that it would be more effective to study methods of propaganda for the purpose of fostering a critical attitude with respect to social issues concurrently with systematic inquiry into these questions. "Possibly critical thinking can be developed best," he suggested, "when pupils are taught in such a manner, throughout

their school experience, that they must constantly use information in problem-solving situations and in such a manner that they are constantly forced to make tentative conclusions as a result." 25

Summary Concerning Critical Evaluation. The available evidence strongly indicates that there is no short cut to critical evaluation or to the making of sound judgments. Before one can determine whether a statement is valid, he must be certain that it can be supported by relevant, accurate, and sufficiently extensive and consistent data. He must also decide whether or not the inferences which have been drawn from the facts are justified, and perhaps whether the full bearing of the data has been apprehended. The same process is necessary for constructive thinking, except that, when one is attempting to solve his own problem, he must construct his hypotheses as well as evaluate them after they have been made. It is worth repeating again that reflective thinking is hard work that calls for both rigorous and thorough procedures. But it is just that kind of experience which the school should provide for future citizens of a democracy.

CREATIVE IMAGINATION

Relationship between Reasoning and Creative Imagination. Perhaps this chapter should not be closed without a comment on creative imagination. Some of the discussions on creative activity in modern schools seem to suggest that children can be expected to make artistic things without any training in techniques or any background of experience and information. The notion is, apparently, that all that is necessary is for children to express themselves; no questions are asked about what is to be expressed, or how skill in expression is to be attained. The assumption is, too, that creative imagination is not comparable in any way with what we have described as critical evaluation and reasoning.

Contrasting Aspects of Reasoning and Creative Imagination. It is probably true that the reasoning involved in criti-

cism affords about the sharpest contrast, in certain respects, with creative imagination that may be found. Compare the music critic and composer. The music critic must be able to reason; to analyze a composition, to classify and evaluate its elements in accordance with recognized norms of good usage, to see the similarities to, and differences from, other compositions, good and poor. Superficially, this type of thinking seems to be very different from that involved in creating a composition. The composer must imagine new things, not merely react to what is before him. To be sure, he utilizes recalled facts and must work, in his imagination, with musical notes. His work, however, is that of imagining new combinations of these notes; he must create. Perhaps many melodies come to him only to be discarded. They are discarded, however, in the light of some standard; because they fail to suit his purpose, which may be to secure a new combination of a prescribed type.

Essential Similarity between Reasoning and Creativeness. Really, the new combinations which occur to him are psychologically much like the "trials" of the person trying to solve a difficult mechanical puzzle or the insights of the mathematician working on a difficult problem, or the hypotheses of a scientist searching for a general explanation of the movements of clouds or stars. The trial movements or insights or hypotheses are really new combinations of simpler movements, operations, or ideas, respectively, just as the tentative melody is a new combination of strains or notes. In all of these cases, moreover, the trial product must be evaluated in the light of other facts, rules, laws, or standards of some sort. The test of the manipulative response is simply whether it unlocks the puzzle; the test of the mathematician's insight is whether it produces the right answer; the test of the scientist's hypothesis is less precise and final, but it must explain all of the facts, must explain them in the simplest way, and must be consistent with explanations in related fields. The test of the musical composition is still less rigid and conclusive, but it must

observe certain accepted standards of harmony, rhythm, and originality. Thus the distinctions between types of reasoning and creative imagination are not so clear as they may appear at first sight. They are practical rather than psychological. The field of purposive, controlled, selective thinking is as broad as the world of facts that may be perceived or imagined, but the characteristics of purposive thinking are very much alike whatever the purpose, the kind of facts utilized, the character of the products, or the nature of the tests of validity applied.

Influence of Products of Masters on Originality. In thinking of the fields of literary, musical, and other artistic productions, familiarity with the products and techniques of the masters seems to be quite as useful as acquaintance with the facts is essential to originality in other fields. In the aesthetic fields the fear that familiarity with other products may cramp or inhibit originality seems to be more frequently and tenaciously held than in business, mechanics, or science, but for no good reason. In the better types of instruction in composition, drawing, design, and the like, more attention is given than formerly to study of good products, to theory and technique. Originality is fed by such equipment; starved by poverty of examples and precedents.

SUMMARY

Individual Differences in Degree of Reasoning Ability. There are wide variations among individuals in reasoning ability, but any measure of reflective thinking in an unselected population will show that it is distributed continuously. We cannot say that only a small proportion of the population can reason, for such a statement would imply that a sharp division could be made between those who possess reasoning ability and those who do not. Since the distribution is a continuous one, differences in the ability to do reflective thinking are differences in degree.

Although there is a close relationship between intelligence

and problem-solving ability, one should not assume that the higher mental processes develop instinctively to the optimum level of functioning. Training in systematic methods of problem solving is necessary for the attainment of maximum efficiency.

Reasoning Ability in Children. The ability to reason does not appear suddenly but develops gradually with age and experience. Children can solve problems even at the preschool level. As they approach adult status, they will discover solutions more rapidly and with fewer errors, they will be more systematic in exploration and in the formulation and evaluation of hypotheses, and they will make more adequate generalizations. But the differences in the reasoning of children and adults are differences in degree and not in kind. This means that education at all levels should make maximum use of the higher mental processes.

Nature and Process of Problem Solving. Problem solving occurs when ready-made patterns of response are not adequate for overcoming an obstacle to the satisfaction of a need or the attainment of a desired goal. Problem solving is a form of learning in which the appropriate response must be discovered. The important features of the process are the selection of relevant data from past experience, the collection of further pertinent information, and the reorganization of all the essential factors into a new pattern of behavior which meets the demands of the problem situation.

Many of the so-called problems which we "assign" to pupils are nothing but routine exercises. It is still possible to find textbooks in algebra, for example, which present a type problem at the top of the page and list underneath it a series of "verbal problems" which can be "solved" merely by setting up the same kind of equations as those in the example. Such exercises ordinarily entail very little reasoning and even may be done with very little understanding.

What constitutes a problem for a given individual is essentially a subjective matter. There are all kinds of problems

about us which we do not see or, if we are aware of them, about which we are entirely unconcerned. Problems grow out of information and interest, problem solving is a response to personal need. We may expect pupils really to take hold of difficulties that are related to their experience and instrumental to their goals.

Defining the Problem. Reflective thinking cannot be effective unless the problem is clearly and fully defined. It is futile to ask pupils to think through broad issues until the most important features of the problem as a whole have been discovered. Dividing the total situation into related subproblems or topics makes it manageable. It is the explicit definition and understanding of the problem itself which guides the recall of pertinent experience and the search for new facts, and which determines the form in which the data must be reorganized.

Collection and Evaluation of Information. There is no more fruitful means of improving problem-solving ability than to inculcate respect for evidence, and to encourage the habit of thoroughness in obtaining information on complex issues. Perhaps the most important tools of reflective thinking are the abilities that are necessary in selecting sources, evaluating the reliability of sources, getting accurate meanings from reading, and organizing information into coherent patterns of ideas. But collecting data is obviously not sufficient; it is necessary to make a systematic effort to perceive relationships, and to formulate and evaluate hypotheses. The entire atmosphere of the classroom will have much to do with the development of critical attitudes and a determined search for the truth.

Other Essentials for Effective Thinking. Pupils should learn to exploit cues thoroughly, but to maintain a flexible attitude which will ensure fresh methods of approach and a consideration of all points of view. It is especially necessary to analyze the statement of a problem carefully to avoid misleading cues and to secure an accurate knowledge of what is

asked for and what is given. Pupils should learn to examine their own reactions for emotional biases and preconceptions which may obstruct an objective treatment of a problem situation.

Experience in reflective thinking should culminate in the acquisition of systematic methods of thinking. This means that methods of mental work themselves should be consciously identified, generalized, and applied in pertinent situations. To understand and use the scientific method, for example, one needs to react to the process of scientific thinking as well as to the empirical data which constitute the content of reasoning. These attitudes and procedures should be generalized into fundamental principles, and the individual should make deliberate use of them in subsequent learning.

There is evidence that critical ability and reflective thinking develop with knowledge and experience in separate fields, rather than as universals which can be taught in a general course in reasoning or logic. The ability to make critical evaluations and to solve problems constructively in social studies, science, personal and social living, and in other fields should not be left to incidental learning, but should be developed through systematically planned activities.

The Relation of Creative Activity and Problem Solving. Creative activity and problem solving are not essentially different forms of behavior. Contrary to the assumptions of some educators, mere expression is not especially worthwhile. Creative work in music, art, and writing is valuable to the extent that pupils acquire progressive mastery over the essential skills and techniques of these art forms, not as an end in itself, of course, but as the means of more effective expression. Creative imagination, furthermore, is not something which emerges full-blown, but depends, like problem solving, upon a wealth of experience and a store of meaningful ideas.

Foundation of Reflective Thinking. It may be well to

place in a vacuum. There is one sense in which the admonition to teach how to think rather than what to think is specious. There is no value in emphasizing *method* out of relation to *content*. The product of thinking can be no better than the ideas that were used in arriving at the conclusion. For that reason, the processes which were discussed in the preceding chapter on the development of meanings and those which are involved in reasoning should be considered as interdependent. Even more specious, therefore, is the slogan that we should teach ideas instead of facts, have pupils solve problems instead of acquiring information. It is entirely justifiable to condemn the memorization of numerous unrelated and functionless items of knowledge. Facts get their meaning and value by use. What competent teachers are doing, therefore, is not handing out ideas and conclusions ready-made, to be memorized and passed back, parrotlike, in a recitation, but stimulating pupils to acquire information as a means of bringing about desirable consequences, as a means of solving their own problems.

QUESTIONS AND EXERCISES

1. Try to locate, in an autobiography or magazine article or elsewhere, some eminent thinker's account of how he solved some particular problem or made some invention. Examine the report critically, especially the part in which advice is given, to observe what really useful suggestions are presented.
2. To what extent do you believe reasoning ability is a reflection of general intelligence? From the information given in a previous chapter on the "nature of intelligence," discuss its relationship to reasoning.
3. Does the average farmer, chauffeur, stenographer, salesman, cobbler, housewife, physician, or banker reason very much? After several years of experience in any of these vocations, is it more or less *necessary* to reason in order to get along more efficiently than at the beginning? After several years is one more or less *able* to reason in that field?
4. Why is "reasoning ability" regarded as especially important in a democracy? Cite examples and evidence to make the reason for your answer explicit.

5. Criticize or defend these statements "Necessity is not the mother of invention Knowledge of previous inventions is the mother, original ability is the father."
6. In the course of your schooling were you given direct training for efficiency in reasoning? How was it worked into your program? Where else do you think it might have been introduced to advantage?
7. State your opinion on these assertions: (a) We require in general too much learning by rote in our schools and colleges, (b) If we clutter the student's mind with memorized facts we interfere with his thinking; (c) It is not that too much is memorized, but rather too little; (d) It is not that too much is memorized, but that unessential material is learned, (e) Not too much memorizing, but memorizing in ineffective ways
8. Which is more likely to stimulate a high school boy to think — the study of formal logic or a serial detective story? Will either improve ability to reason in general? What material would be better than either?
9. Express in a sentence or two the essential relationship as you see it between reasoning ability and the "concept formation" which was discussed in a previous chapter.
10. If you were trying to encourage students to attempt to think, to invent, create, solve problems — would you choose tasks very easy or very hard or moderately hard? Why? Compare with your choice of opponents in wrestling, tennis, etc. Is there any basis of comparison here? If so, what?
11. Take this practical project which will probably provide occasion for problem solving for anyone Devote a half hour to making a workable weekly time schedule for yourself. When it is complete, list in sequence the steps you took in "solving" the problem and analyze the stages in accordance with the outline of the problem-solving process presented in this chapter.
12. Describe in detail the procedure for introducing a reasoning activity into a lesson plan for some elementary school subject other than arithmetic.
13. Can you suggest some methods of training high school students to resist propaganda without centering your approach on "methods used in propaganda"? Use for illustration some piece of propaganda you have seen recently
14. It was said earlier, "the skills and abilities which are taught in a modern work-type reading program are indispensable reasoning tools" Go to outside sources if necessary, but explain precisely

- 15 List the different kinds of "general reference" books you have had occasion to use in the course of your schooling, and state the chief value of each. Compare your list with the lists of the other members of the class
- 16 If all x 's are y 's, If all x 's are y 's;
And if all z 's are y 's; And if all z 's are y 's;
Then no x 's are z 's Then some x 's are z 's
Sells used these two syllogisms among others in his study of atmosphere effect. Ask a number of your friends to state whether they accept them as true or not. Tabulate your results and draw conclusions. What do such results indicate with regard to the hazards of writing examination questions?
- 17 While solving the following riddles, see if you can detect inappropriate methods in your procedures
 - a. Use me well and I am everybody. Scratch my back and I am nobody. What am I?
 - b. What is full of holes and yet will hold water?
 - c. The man who made it wanted to sell it. The man who bought it never used it. The man who used it never saw it. What is it?
- 18 What distinction may validly be made between propaganda and education?
- 19 Cite recent instances in which you have detected propaganda in headlines, movies, radio programs, or magazine articles. Just what technique was used in each case? In view of the evidence reported in this chapter what, if any, was the effect of the propaganda on you? On others?
- 20 Invention. The ordinary tooth-paste tube is unattractive, unhygienic, and clumsy. Think of some attractive mechanism — if possible, a more permanent bathroom fixture — that will remedy these defects. While doing so compare the mental operations with those observed in solving the verbal or mechanical puzzles. What are the similarities and differences? Is this type of invention reasoning or creative imagination? Justify your answer.
- 21 Artistic creation. The ordinary collar and tie which men persist in wearing is not comfortable, not especially attractive, and troublesome to use. Imagine and, if possible, sketch a new neck-gear that is more attractive and comfortable and also practicable. Compare the mental operations with those above. Is this a sample of reasoning, imagination, or what? Compare it as a type of thinking with the creation of a new dress or wall-paper design or a new melody.

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CHAPTER XV

Transfer of Training

However the purposes of education are expressed, they invariably involve the ability of the individual to utilize in new situations what he has previously learned. The assumption underlying the whole educational enterprise is that the knowledge, the skill, and the methods of learning which are required in connection with definite school tasks will not only be available in the future, but will be applied in some measure at least to the solution of new problems as they arise in further schooling and in life.

Some educators have made extravagant claims or unscientific assumptions about transfer of learning. They have confidently expected, for example, that the individual will carry over the arithmetical abilities he learns in the classroom to the problems that he may actually meet in business, in the management of personal finances, or in practical construction tasks about the house. The teacher of algebra often assumes that his pupils will automatically apply their knowledge of equations to the solution of problems in physics. By studying civics, economics, and sociology, the student is expected to gain the ability to interpret intelligently the social problems which will arise in the future. The school has frequently assumed that health *knowledge* will change health *habits* or that a study of dietary requirements will result in better eating habits. Sometimes these expectations of transfer of learning from certain situations to other circumstances have proved extremely unrealistic; in other instances, the results, though

nearly always far short of what one might wish, have been more gratifying.

The Problem of Transfer. In somewhat more technical form, the problems involved in the transfer of training are raised by the following questions: Does practice in perceiving, memorizing, or reasoning with one type of subject matter improve that mental process in general? Can we improve retention, perception, imagination, or reasoning in all fields by training in one? If the answer to these queries is a positive one, it would be proper to ask a still broader question: Can we improve intelligence in general by experience in memorizing nonsense-syllables, perceiving small differences in colors, visualizing faces, solving problems in mathematics, or by other forms of training? Similar questions might be asked, such as. Can we improve initiative, originality, perseverance, reasonableness, love of truth, dependability, or — more broadly — character and personality by practice or training in a specific task? And if so, in what tasks, by what sort of learning, and to what extent?

Before stating the modern point of view and summarizing the recent research on these questions, it will be worth while to present the background of the transfer problem as it arises in contemporary education.

THEORY OF MENTAL FACULTIES AND FORMAL DISCIPLINE

Nature of the Theory of Mental Faculties. One position on the problem of transfer, old in the history of philosophy and science and even now current in certain circles, is *the theory of mental faculties*. According to this hypothesis, attention, memory, imagination, reason, will, temperament, and sometimes character and other traits are powers or faculties of the mind. Usually the several faculties are held to be mainly, if not wholly, independent of each other. The mind or personality is divided into a number of faculties. Each faculty is a general power, capacity, or character which

possesses a definite unity. Individuals are assumed to have good, medium, or bad memories, judgments, wills, characters, or temperaments. A particular individual may have any combination; he may have a good memory, average reasoning ability, poor will and character, but an excellent temperament. Each personality is the result of some combination of a relatively small number of faculties. It is assumed, moreover, that any particular faculty shows itself as about equally good, average, or poor in all situations. Memory, to be concrete, is the power of acquiring and retaining facts. If you have a good memory everything is easily learned and remembered; if your memory is bad, all facts are learned and retained with about equal difficulty. Will is assumed to be the power of voluntarily controlling action. If your will is strong, you are the "Captain of your fate" in all situations; if your will is weak, you are about equally incapable of controlling your activities in all phases of life.

Proposed Methods for Training "Faculties." Those who hold this view assume that the faculty is a power, capacity, or personal characteristic that may be trained as a whole. It is an entity, and it may therefore be improved as a unit. What we need to do is to find the kind of exercise that will most economically train the memory, imagination, will, or character. Once the faculty is strengthened by this device, it will be, thereafter, more efficient for any purpose to which it is put. If a psychologist were devoted to this view, his procedure in diagnosing a student's difficulties, for example, would consist of a survey of the several faculties. The trouble might be in attention, memory, will, imagination, sociality, temperament, or character, or in several of these. Having found the deficient faculty, prescriptions for intensive training of it, alone, would be given.

Various materials, devices, and methods have always been suggested for improving each faculty. For example, educational authorities once offered special school subjects as a

quotations indicate points of view confidently held. "Study of Latin trains the reason, the powers of observation, comparison and synthesis." "The pursuit of mathematics gives command of attention" and results in "the strengthening and training of the reasoning powers." "For developing the character, strengthening the will and cultivating a wholesome temperament there is no discipline superior to athletics." "Will power and attention are educated by physical training. When developed by a special act, they are developed for all acts." There have always been individuals, moreover, who believed that courses of training utilizing materials of a special sort, different from the regular academic subjects and activities, would be even more effective as means of developing the several faculties. Though some favor various "schools of hard knocks," others provide easier methods. The easiest methods, widely advertised and sold, are the commercial systems for training memory, concentration, will power, social adeptness, originality, imagination, poise, etc.

The Theory of Formal Discipline in Education. The notion that the mental faculties could be developed uniformly as a whole by training in one subject or on one kind of data has been known in education as "the theory of formal discipline." The term "formal" implies that it is the *form* of the activity and not its content, not the subject matter itself, that is important in education. If the activity is of the form of memorizing, it is assumed that memory could be trained no matter *what* is memorized. To learn to reason, one has merely to practice the forms of reasoning. The term "discipline" implies the real spirit of the theory which is that the major virtues of a tenacious memory, an inflexible will, pure and impersonal judgment and reason are to be secured only by very rigorous and full exercise of the faculties.

Early Experiments on Transfer. By the turn of the century, psychologists had begun to test experimentally the validity of the claims made for mental discipline. Since that time the problem of transfer has been one of the most inter-

esting and crucial in educational psychology, and a very extensive experimental literature has become available, a great deal of it, unfortunately, not very reliable scientifically. We shall report, first, studies stimulated by the extravagant claims for general training. They deal mainly with the *amount* of transfer of the results of unguided training of memory, perception, and similar alleged faculties. "Unguided training" means that the subjects of the experiments were merely assigned learning tasks and permitted to work. Perhaps "unguided practice" would be a better description of the learning activities, since few or none of the several forms of guidance suggested in preceding chapters were introduced. Such experiments test the assumption that formal training is a means of improving "mental faculties."

Transfer of Training in Memory. William James in 1890 was the first to attack the problem of memory training experimentally. James and four of his students each ascertained the time required to memorize material from one author, such as a section of Victor Hugo's *Satyr*. Then, after spending about twenty minutes per day for a month or more learning material from another author, they again memorized passages from the *Satyr*. Three of the four students showed improvement, while the other student and James himself found no transfer. These experiments were really too crude to be conclusive, but they are of historical significance since they stimulated further experimental studies by more refined methods.

The approved technique of studying transfer consists in dividing a group of subjects into at least two groups which are approximately equal in ability. All of the individuals are then given tests of ability to memorize each of several kinds of material. This is called the initial test. One of the groups, called the *trained group*, is then given training, usually daily, in memorizing one type of material. One group, called the *control group*, is given no special training during this

series of final tests immediately after the completion of the special training. This device makes it possible to determine how much improvement in the final tests is due to the special training received by the trained group, since the gains that result from taking the initial and final tests alone without other training are revealed by the control group and may be subtracted. This *control group method* is an important and much-used procedure in psychology. This procedure is illustrated in following the study by Sleight: ¹

A group of women students were divided into four subgroups. Group 1, a control group, received no special training; Group 2 learned poetry thirty minutes a day for twelve days; Group 3 memorized tables, such as population data, export and import tables, and foreign coinage systems, thirty minutes a day for twelve days; Group 4 spent thirty minutes a day for twelve days attempting to learn the substance of scientific, historical, or narrative prose selections read to them. Just before and just after the practice series, the abilities of all four groups were measured in the following kinds of learning:

1. Learning series of names and dates given orally.
2. Learning series of nonsense-syllables given orally.
3. Memorizing pieces of poetry, read by the experimenter and repeated by the subjects.
4. Memorizing prose, as in (3), verbatim.
5. Getting the substance of a prose selection presented orally.
6. Memorizing a series of nine letters read but once.

By comparing the improvement of each of the three *practice groups* in each function with that of the *control group*, the transfer of training was measured. The results, briefly, were as follows: Each group gained rapidly in the kind of learning specifically practiced. The influence of training in one type of learning on other types was sometimes favorable, sometimes unfavorable. Practice in memorizing poetry produced

some improvement in learning tables, nonsense, and prose literally, but a *loss* in ability to learn prose substance or recall letters. Those who practiced learning tables were more able to learn tables, prose substance, and nonsense, but less able to learn poetry, prose verbatim, and to recall letters. Practice in getting the substance of prose had a bad effect upon all other forms of memorizing save the "immediate" memory for series of nine letters. Apparently, practice in one kind of learning may facilitate or it may inhibit other kinds of learning within the same general field.

Other investigations of the effects of the training of memory for one kind of material have shown a transfer of improvement to memorizing other kinds of material that is seldom great, usually between five and fifteen per cent of the amount of gain made in the kind of memory specifically practiced. Often it is less than five per cent and occasionally zero or negative.

Transfer of Training in Perception. One of the earliest experiments on transfer in the field of perception was performed in 1903 (by Thorndike and Woodworth).² They found that subjects who had practiced estimating the areas of rectangles of certain sizes (10 to 100 square centimeters) until large improvement had been attained showed only about a third as great improvement when slightly larger rectangles (150 to 300 square centimeters) were given or when the areas were kept constant but the shapes changed. These investigators also found that a period of training which brought about considerable improvement in judging the lengths of lines from one-half to one and one-half inches in length yielded no increase in ability to estimate lines from six to twelve inches long.

Another investigator (Kline)³ gave nine individuals practice in canceling *c*'s and *t*'s from thirty to forty-five minutes a day for fourteen days. Before and after the practice, the subjects were tested in canceling nouns, verbs, prepositions, pronouns, and adverbs. Eight other individuals, who served as a control group, were given the same initial and final tests, but received

no practice in canceling *c*'s and *t*'s. On the final tests the practice group showed less ability in canceling nouns, verbs, etc., than the control group. Apparently, practice in canceling *letters* may cause not an improvement but a decrease in ability to cancel *words* of certain types.

The Transfer of Training in Reasoning. An experiment done in 1913 (by Briggs) ⁴ was designed to test the hypothesis that reasoning, trained in one field, would be improved for work in other fields. The study was designed specifically to test the view, very widely accepted at one time, that rigid training in reasoning in formal grammar would increase in other fields the abilities —

1. To test reasons.
2. *a.* To take from a mass of data all that are necessary and to use them in reaching a conclusion.
b. To demand all necessary data before drawing a conclusion.
3. To reason syllogistically.
4. To detect "catches."
5. To see likenesses and differences.
6. To test critically definitions of all sorts

Fifty-four tests were devised to measure, in some form, each of these and certain similar abilities. They were given to children in each grade from two to seven in an elementary school before and after three months of intensive training of a rather formal sort in grammar and to control groups who studied composition and other subjects during the same time. This investigation showed improvement in the abilities to deal with the subject matter of grammar but not a uniform transfer of abilities to other situations. On the whole, the influence of the training on reasoning, seeing likenesses and differences, testing definitions, seeing "catches," etc., in other fields was small at best and imperceptible in many of the new situations.

The Unsoundness of the Theory of Mental Faculties and the Theory of Formal Discipline. The studies just summa-

rized are but samples of a large number which have been performed since the beginning of the present century. It should be noted that these studies are based upon the results either of relatively unguided practice, or upon rather formal training, as in the teaching of grammar, in which few of the devices mentioned in our chapters on generalizing and reasoning were utilized. These studies were, as pointed out, designed primarily to test the faculty theory and the theory of formal discipline. The results are decidedly antagonistic to both theories for the following reasons:

1. Although the effect of training in memorizing (or perceiving or reasoning with) one type of material is usually a marked increase in ability to memorize (or perceive or reason with) that specific material, there appears a relatively small improvement in ability to memorize (or perceive or reason with) different, sometimes even slightly different, material. *The improvement, in other words, does not transfer uniformly and equally to the learning of other materials.*

2. Although the effect of training in memorizing (or otherwise dealing with) one type of material is usually a marked increase in ability to memorize (or otherwise deal with) that material, its effect upon memorizing (or otherwise dealing with) some other materials may be no change or even a decrease in ability. *The transfer may be of indifferent value or detrimental, as well as helpful.*

It is clear, therefore, that the facts of transfer cannot be explained as due to a general, all-round improvement of mental faculties, such as memory, perception, or reason. These experiments, from the first, destroyed utterly the old theory of formal discipline. Most teachers are no longer misled by the notion that mental resources can be improved satisfactorily by merely seeing to it that pupils have plenty of hard toughening exercise in memorizing, observing, judging, reasoning, or what not. They no longer entertain the false doctrine that mere training, mere hard work on one kind of material will improve any or all other "faculties."

Nevertheless, the disciplinary theory bobs up again in every age. It is the principal support for the recent crusade to restore classical education to a dominating position in colleges of liberal arts. The assumptions behind this movement seem to be that to understand the culture of the ancients will make contemporary society intelligible; that to follow the logic of Euclid will train us to reason, not merely in plane geometry, but in other fields and in all the important affairs of life; that the intellect can be trained independently of emotion and attitude; and that the intellect, disciplined, sharpened, and toughened by grammar, logic, metaphysics, and mathematics, will thereafter range freely, incisively, and infallibly throughout the intricate problems and issues of modern life.

RECENT THEORY AND RESEARCH ON TRANSFER

Investigation has demonstrated that although the extravagant claims for formal discipline proved to be false, transfer frequently does occur in varying amounts. It has usually been small, and in nearly every experiment has turned out to be much less than one would desire. But an analysis of the experimental results has given us an important cue to the conditions which make transfer possible and to the means by which it may be increased. It has been discovered that, on the whole, the carry-over from one situation to another is roughly proportional to the degree of resemblance in the situations. This conclusion suggested the possibility that transfer takes place to the extent to which there are *identical elements* in the old and new tasks. If the relatively novel situation is in part or in parts identical with the familiar stimulus pattern, then it should be possible to carry over from the one to the other the reactions which the individual had learned to make to those particular conditions.

Theory of Identical "Components" Rather Than "Elements." As the literature on transfer of training developed, the term "identical element" unfortunately came to be used in an atomistic sense. It was used to refer to highly detailed

constituents; to extremely narrow common units; almost, at times, to indivisible entities. However, more careful treatments of the problem did not use the word "element" in this narrowly atomistic sense. "What the theory of identical elements demands," writes Woodworth, "is that transfer should be of concrete performances, whether simple or complex makes no difference to the theory. Confusion will be avoided by using the word 'constituent' or 'component' in place of 'element' and by speaking of the theory of identical components" ⁵

The theory of identical components, then, would deny that practice in tennis would improve one's attention, concentration, will, or temperament for meeting all situations or dealing with all kinds of data equally, but would affirm that certain *skills*, *procedures*, and *attitudes* such as judging the flight of a ball, remembering to keep one's eye on the ball, and to keep cool by thinking of the game instead of the spectators would carry over to another activity such as handball to the extent, roughly, that the two games and the general situations have important characteristics in common. What sorts of responses, according to the theory of identical components, may transfer? Or, expressed in another way, what kinds of components may two or more activities or situations have in common?

Transfer of Techniques of Reacting. During practice in memorizing, a subject may learn a variety of methods of attack upon the particular subject matter. For example, if he is learning a list of items, he may hit upon the technique of repeating them rhythmically, a procedure which he may use with lists of different things. He may find that searching for certain of the items to use as landmarks is profitable, and this device may be used on other materials, in some cases advantageously, and in others disadvantageously. Again the subject may use the plan of learning by the whole rather than the part method, and this procedure may be adapted to other kinds of material. From experience, he may discover that his "memory" is not so bad, and this feeling of confidence

may recur whenever any task of memorizing is presented. On the other hand, he may acquire habits of using ineffective associations, of disliking such work, of doubting his capacity to improve. When transferred, these activities would interfere with the learning of new data. What is carried over, then, from the point of view of identical components, is not an improved faculty of memory, but a group of new devices, ideas, attitudes — in a word, a new technique, which may be good or bad in whole or in parts.

Transfer of Facts or Information. Not only do we transfer attitudes and procedures to new tasks, but we also may utilize knowledge gained in a given situation in other situations. This is what is presumed to happen when the child uses his knowledge of the simple addition combinations in performing column addition. Previous knowledge may provide cues for the solution of new problems in geometry. Historical information may make the literature of a period more understandable. Psychological principles may be applied in writing attention-getting leads for newspaper stories. With information, as with other responses, the amount of transfer, according to the theory of identical components, is determined by the common features of the original learning activities and the situations where knowledge is applied. In many instances little transfer occurs because the individual fails to detect the underlying similarities in the situations which confront him.

Theory of Identical Components the Basis for Social Utility Movement. The principle that transfer takes place through identical components provided the psychological basis for the social utility movement in education. If the amount of transfer depends upon the presence of common features, it is obviously important to make the activities of the school as nearly as possible like those which actually occur in life. The transfer of methods of attack, of knowledge and insights, techniques of learning and problem solving, interest, poise, habits and ideals of caution, honesty, accuracy, thoroughness, initiative, etc., to the situations of life will be large,

supposedly, to the degree that the subject matter and activities of the classroom are similar to those encountered in life outside the school.

The social utility movement has turned the attention of the school to the real and significant concerns of human living, and away from unreal or fantastic problems and trivial and impractical information. Some of the results of this emphasis on reality in the school are attempts to determine what words we need to spell in the writing which we actually do, what arithmetic knowledge and ability we need to use; what historical and scientific information it is essential or worth while to know; what problems in relation to health, recreation, public affairs, home membership, vocational orientation and training, and personal and social adjustment we must solve in satisfying and helpful living.

Encouragement of Lifelike Methods of Learning. A second movement in education which was the logical outgrowth of the principle of identical components is concerned with the *method* of acquiring information, skill, reasoning ability, and other educational outcomes. It is a movement aiming, in general, at making methods of learning as similar as possible to those most suited to real life. It assumes that, in life, persons are largely engaged in solving practical problems, meeting new issues, planning and carrying out numerous purposeful enterprises largely on their own initiative. The modern school believes that life would be improved if persons could set up purposes and formulate problems, devise and master the means to attain their goals and solve their difficulties, and persevere in the endeavor until the project has been completed and the results applied.

These educational adaptations are evidence of the conviction that the surest way to acquire ability to solve important life problems and to consummate worthy projects and purposes is to begin early to do so. The more lifelike the problems, activities, and purposes are, the greater the transfer from them to life will be; the more satisfactory the methods of pro-

cedure in dealing with them in school, the more helpful they will be in meeting the situations in out-of-school life. In several directions, then, the theory of transfer by identical components has encouraged and justified movements designed to make education, in its choice of materials, methods, and spirit, less academic, artificial, and isolated and more closely related to significant personal and social activities. The school more and more seeks to help pupils to learn how to participate fully and effectively in all phases of modern life.

The Identification of Common Essential Features. We have called attention to the fact that transfer may fail to take place because the individual does not perceive the common essential features of situations which appear superficially to be very different in nature. One might expect the pupil who knows how to multiply in the conventional multiplication exercise to multiply successfully in long division. At least this would seem to be an excellent illustration of the presence of identical components in two mathematical processes. The evidence shows, however, that pupils transfer their multiplication skills to long division problems only partially. It was this finding which impelled one investigator to recommend that if pupils are to learn to multiply in long division, it would be wise to have them practice it in that context rather than in isolation.⁶ This may be a wise suggestion.

Another useful procedure would be to train pupils to "dig into" situations as a whole and try to find their more subtle features. The teacher himself should often point out the critical or essential facts or relationships which a pupil would otherwise miss. This may be done by asking pointed questions rather than by telling directly.⁷ In fact, by every means possible the teacher should encourage the pupil to take an active attitude in searching out the underlying factors which are most significant in a given problem or task. Students who make an active effort to identify the phases of a new exercise in plane geometry which are related to previous theorems are most likely, other things being equal, to solve

the problem. The person who gets "at the bottom" of any new situation is much more likely to find that it is not entirely novel, but that it possesses features he has met before. Then he can bring his previous experience to bear on the new situation. For example, internal combustion engines can take many forms. Superficial observation of a machine that one has never seen before may give no inkling of what it is. But when one examines its basic characteristics, he may easily discover that it possesses the necessary features to classify it as an internal combustion engine.

One gets insight into a situation when he discovers its essential features and relationships. These basic, critical characteristics are often so subtle that they cannot be perceived by superficial observation. They may also be obscured by a mass of detail. The same principle may be expressed, usually, in a great variety of specific situations. To cut through specific details to underlying relationships is ordinarily necessary if one would utilize his previous experience effectively in new situations. It is not the individual items or the gross characteristics, but the pattern, the scheme, the meaning of an experience which is its most significant characteristic.

THE IMPORTANCE OF GENERALIZATION

In the chapter on The Development of Meanings, generalizing was described as the process of attending to the common feature or principle or relationship in a variety of specific situations differing only in external or nonessential details. The process of getting under the surface to the subtle and vital components of experience, which we have emphasized in the previous section, is, therefore, the basis of generalization. And there is a growing body of experimental evidence to the effect that systematic generalization of experience is favorable to its subsequent utilization.

Judd's Early Experiments. One of the well-known experiments on generalization was conducted by Judd. The task

was to hit a target under water with a dart, which necessitated a readjustment of the ordinary way of throwing the dart because of the refraction by the water of the light from the target. The subjects were two groups of fifth and sixth grade boys. One group tried repeatedly to hit the target without any instructions whatever. Before the second group began its practice, however, the experimenter gave the boys an explanation of refraction and the relation of the phenomenon to the task at hand. Both groups required the same length of time to learn to hit the underwater target. Then the conditions were modified by changing the depth of the water, which would make further readjustment necessary in throwing the dart. The change in the apparent displacement of the target confused the boys who had had no explanation of refraction. The reactions of the other group, and Judd's explanation of their behavior, can best be given in his words:

As contrasted with the boys who had no theoretical training, the boys who knew the theory of refraction adapted themselves rapidly to the second depth of water. Their ability to deal with the new situation grew out of the fact that they recognized the true relation between this and the earlier situation. The theory had put all of their experiences — those without water, those with one depth, and, finally, those with another depth — into a single general scheme of thought. They were aware of the fact that there are gradations in apparent displacement, and, when they encountered a second depth of water, they were able to deal with it promptly and efficiently. In other words, after they had mastered one practical situation and had comprehended it in the light of theoretical knowledge, they were able to solve rapidly and with all the advantages of generalized experience a new problem which involved both practical adjustment and analysis. Theory is a kind of summary of many experiences. It makes possible the proper interrelating and interpreting of a whole body of varied experience.⁷

In another of his experiments, Judd gave two subjects practice in adjusting the length of line *C* (in Fig. 25) to apparent equality with the horizontal line between the oblique lines in *D*. The situation can be arranged by having diagram *D* placed on a card, which can then be moved back and forth

along line *C*. What the subjects were dealing with was, of course, the Mueller-Lyer illusion. One of them received no information concerning the changes which took place as he gradually overcame the illusion and finally made the lines actually equal. The other, however, although he also had to overcome the illusion gradually, was informed of the progressive changes in his responses.

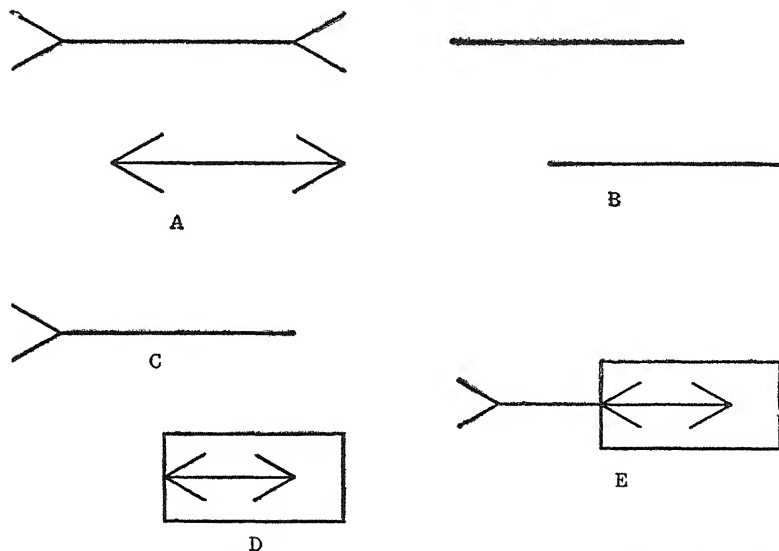


FIG. 25. THE MUELLER-LYER ILLUSION AND DEVICES FOR MEASURING THE STRENGTH OF THE ILLUSION

A, the illusion that the two lines are unequal, B, horizontal lines of equal length; C, the adjustable line, D, the underestimated line on a separate card; E, the combination of C and D, with the horizontal lines set so that they seem equal. (From Judd, *Educational Psychology*, Houghton Mifflin, 1939)

After both subjects had adapted successfully to the illusion, the figure was reversed. The effect of the illusion was now approximately double what it was before the practice series. The subject who had been kept in ignorance of the changes in his judgment but who had nevertheless succeeded in the first instance, now failed in 1500 trials to overcome the double illusion. Apparently he carried over to the second situation

the specific habits he had acquired in the first one, and this produced a negative effect. The subject who knew about the illusion, however, managed to adapt successfully to the new figure in 137 trials. Judd attributes this performance to the fact that he had generalized the . . . and the solution, and thus could approach the second task in an appropriate fashion, even though it was materially different from the first occurrence of the illusion.

Interpretation of Judd's Results. It appears, then, that by *understanding* what occurs, by providing a *rationale* for specific adjustments, or by systematically organizing and generalizing experiences, learning becomes more broadly applicable to the specific forms in which new situations and new experiences occur. Judd points out the educational implications of this kind of learning as follows:

Science instruction is often a failure because it consists in mere drill on isolated items of information. The teaching of mathematics frequently fails because it does not go beyond the presentation of authoritative statements which are true but which have no vital meaning to pupils. The preventive for the narrowness of school teaching and for lack of transfer is to be sought in the organization of instruction in such a way that the learner will constantly be made to see the broad relations of items of experience. A pupil should be taught arithmetic by methods which will facilitate the transition to algebra. He should be taught that the findings of science all group themselves into related systems of generalizations. He should be taught that concentration of attention, analysis, and discrimination are useful habits of mind that he can use in all the situations which he encounters. In short, he should be taught by every possible device to see the advantages of generalization. Generalization is another name for the relating of experiences in such a way that what is gained at one point will redound to the advantage of the individual in many spheres of thought and action.⁸

The importance of detecting the crucial features of experience and of constructing general principles, ideas, or procedures as means of interpreting and managing new situations is so great that recent research on generalization and transfer should be summarized rather extensively.

Effect of Generalization in Transfer of Skill. Instruction in methods of performing mechanical operations has proved to be more effective than specific practice in producing transfer of manual skill. The task in one experiment was that of assembling and stripping an electric lamp holder. One part of the apparatus was used for the learning activity, and other parts constituted the material for the transfer tests. One group of subjects merely practiced assembling and stripping forty times a day for eleven days. The other group received instruction in principles to be observed in carrying out the manipulations. The training covered the following points: (1) general methods of arranging parts on the bench, (2) what to observe with the eyes during the operations, (3) what to observe with the fingers, (4) economical methods of controlling attention and effort, and (5) methods of applying the foregoing principles to the operation as a whole during actual work. The subjects then practiced, with special emphasis on the principles which had been explained. Although the two groups spent the same amount of time, the second or "trained" one repeated the operation only eighty-five times in comparison with the 440 repetitions of the "practiced" group. The "practiced" group showed practically no transfer to the unlearned operations, but the one which had been instructed in the principles and methods of efficient manipulation carried over their training in substantial degree.⁹

Effect of Transfer of Learning in Reasoning. Training in reasoning covering simple techniques of analysis, abstraction, and generalization has improved the ability of experimental subjects to get the point of Aesop's fables. The initial and final tests for both the experimental and control groups consisted of the task of writing the lessons conveyed by fifteen of the fables. In the meantime, the experimental group was given twelve lessons of twenty minutes each distributed as follows (1) four lessons on analogies, such as "prince is to princess as king is to —," in which the subjects gave the steps by which they arrived at results, and finally wrote out

the steps in reasoning involved; (2) four lessons on analysis with abstractions and generalizations made from the concrete to the general and *vice versa*, and (3) four reading lessons emphasizing comprehension and analysis of behavior situations and calling for the subjects to write out the mental steps by which they had arrived at the answers. Experimental groups of both twelve- and thirteen-year-olds and adults gained substantially over their respective control groups which had not had the training between end tests. The residual gain of the children was approximately sixty-four per cent, and that of the adults, sixteen per cent. The author of the experiment concluded that the improvement of technique in reasoning can transfer to very different material.¹⁰

Generalization and Transfer in Arithmetic. Several studies have demonstrated that meaningful generalization in arithmetic facilitates the transfer of training, and may make specific instruction on all detailed constituents of a process or function unnecessary. These experiments have done a great deal to shift the emphasis in the teaching and learning of arithmetic from reliance on mechanical drill to the development of mathematical understanding and to the meaningful manipulation of number.¹¹ We have already referred to two experiments which showed that meaningful learning and generalization were advantageous for transfer. In the course of instruction and at the end of his experiment, McConnell gave four transfer tests to two groups of second grade pupils. One group had been taught by methods that were confined to specific drill on the basic addition and subtraction facts, and the other had been given instruction that emphasized the meaning and the interrelationships of the combinations. The group that had used the meaningful approach was superior to the drill group on all four tests. Although only one of the differences was large enough to make certain that chance had not accounted for it, the consistency of the results made the case for meaningful learning fairly clear. Incidentally, both groups showed considerable ability to handle

untaught processes. On the final transfer test, the percentage of correct responses of the meaning and drill groups were 77.6 and 70.5, respectively, on the section on column addition of three one-place numbers. On the exercises involving adding by endings without bridging, such as $23 + 5$, the percentages were 64.5 and 49. On subtraction of one-place from two-place numbers without borrowing, the percentages were 48.6 and 39.9. With borrowing, the results were 22.9 and 18.9.

Thiele's investigation emphasized the discovery and generalization of the relationships among the simple addition combinations. This method of learning was compared with drill on each number fact as "a specific element with no relation to any of the other number facts." The second grade pupils in the generalization group discovered and used such principles as the following (expressed in their own words) in learning the related combinations:

"When you add 1 to any number, the answer is the next higher number." "You go up two numbers or skip a number when you add 2." "The number is the same when you add 0." "You can turn any combination around."

The generalization group was decidedly superior to the drill group on the transfer test given at the end of the experiment.¹²

The effect of generalization and rationalization on the development of skill in column addition was the subject of another experiment in arithmetic. Actually four methods of instruction were used with equivalent groups of second grade classes, as follows: (1) specific practice on computation without any generalization of procedure or rationalization of the process; (2) generalization of procedures, such as keeping right-hand column of numbers straight; (3) rationalization of the process, including such principles as the addition of one's to one's and ten's to ten's; and (4) a combination of generalization and rationalization.

The original instruction was on the addition of two and

three two-place numbers and two two-digit numbers and a one-digit number. The test of transfer was to the addition of four two-place numbers, addition of two three-place numbers, and the addition of one three-place and one one-place number. The amount of transfer in the generalization group was significantly greater than that among the subjects who had had only specific practice. The pupils who had supposedly rationalized the process of column addition, however, were not significantly superior to the practice group. The subjects who had used both generalization and rationalization made significantly higher scores than the practice group on the transfer test, but were not superior to the pupils who had employed generalization without rationalization. This experiment demonstrates the value of generalizing procedures, and apparently discloses that mathematical rationalization was not very effective. One suspects, however, that the amount of time and the method of rationalization were not productive of real understanding of the process.¹³ In the McConnell and Thiele experiments, generalization was not so much concerned with procedure as with fundamental mathematical relations, and in these investigations rationalization was distinctly favorable to transfer.

Generalization and Transfer in Spelling. The theory that, if one wants to learn something, he should practice it specifically came to dominate instruction in spelling. Horn, for example, advised that, instead of using rules and grouping words according to likenesses and differences, each word should be treated as an individual problem — the pupil should study the words he should learn to spell.¹⁴ Recent investigations, however, have demonstrated that generalizing facilitates transfer of training from taught to untaught words. Gates made a careful study of this problem with 3800 pupils in 106 classes in grades two to eight. During an entire school term, the same list of spelling words was taught by two different methods. In one, known as the generalization method, the words were grouped according to common elements, such

as common suffixes and common phonetic elements. Pupils' attention was directed to likenesses and differences, and they were aided in generalizing these experiences. Familiar spelling rules were used, but "not taught long or rigorously."

The other method treated each spelling word as a specific learning problem. Instead of being grouped, the words were taught in the order determined by a combined criterion of frequency of use and difficulty. The pupils who had had experience in generalizing showed a superiority of from six to eight per cent in ability to spell "new" words, that is, words which were not in the instructional list, and exceeded by nine per cent the ability of the other subjects in converting base words into derived forms by adding suffixes and in writing words containing *ei* and *ie* and other common elements.¹⁵

Hoping to discover whether it would be possible to make learning in spelling more economical by grouping and generalization, Breed examined a large number of experiments which involved that problem. He concluded from this critical survey that there was sufficient evidence to recommend greater recognition of rules in teaching spelling. His interpretation, which follows, includes some important qualifications:

The more recent studies seem to indicate that rules will be effective if a limited number are selected with a view to range of applicability, freedom from exceptions, and difficulty of learning; if these rules are inductively developed, and if the children are properly guided in generalizing in new situations. In other words, it seems possible to improve instruction in spelling by a judicious increase of emphasis on rationalization.¹⁶

Transfer in Mathematics Often Meager. There is a discouraging amount of evidence that pupils fail in great degree to carry over into other situations the algebra and geometry they learn in the classroom. In the first place, if pupils encounter formulas or mathematical situations expressed in unfamiliar symbols, they may not recognize them. For example, a state-wide study of achievement in

algebra revealed that only twelve per cent of the pupils involved could answer this question correctly:

*If a train runs M miles in five hours, how many miles will it run in K hours at the same rate of speed?*¹⁷

An article on "Our Impractical Education," which deplored the divorcement of theory and practice in the classroom, explained how a man whose formal schooling had ended with the eighth grade showed some amateur carpenters who were building a summer cottage how to square up the foundation. He advised them to start from the corner, measure off three feet along one side, and then four feet along the other. If the distance between these two points was five feet, the foundation at that corner was "square." The observer decided to present the same problem to a college class, the members of which, unlike the relatively unschooled person who had provided the practical assistance, had once studied the Pythagorean theorem. Only 38.4 per cent of the men in the college group were able to produce a right angle, and but 14.7 per cent of the women. Only one-fourth of the students were able to solve the problem.¹⁸

Methods of Facilitating Transfer in Mathematics. By diagnostic procedures, another investigator seems to have hit upon some of the reasons for this state of affairs in learning and using mathematical abilities. His analysis of pupils' errors in geometry revealed that, although an individual may understand a term, perform a construction, or use the appropriate theorem in a relatively simple single figure, he may not be able to do the same things correctly in a complex figure. After all pupils had learned to bisect a single angle in a particular position, fifteen per cent could not bisect the angles of a triangle. When only a point and a line were involved, they could draw a perpendicular to a line, but fifty-two per cent of them made errors when the figure became much more complex. After learning to recognize two sides and the included angle and two angles and the included side in a

triangle, as many as forty per cent of the pupils failed to identify these segments when the figure involved overlapping triangles. The methods which were devised to increase transference included the following:

1. The figures were first presented as wholes, and pupils were helped to recognize the essential aspects and to discriminate these from the irrelevant ones.
2. Construction problems were analyzed and *generalized* so that the method would apply to any figure and not only to a particular one.
3. Terms and propositions were illustrated in both simple and complex figures.¹⁹

The psychological justification for these methods has been presented in the chapter on the development of meanings. In discussing the process of generalizing, we pointed out that the relationship to be generalized should be presented in a variety of particulars, and in different contexts. In other words, one should promote the "discovery of the constant (abstract) in the variable (the concrete)." ²⁰

The investigation of errors in geometry referred to above also showed that pupils did not understand the nature of proof. To remedy this deficiency, they were given explicit instruction in the nature of deductive thinking. First, the class concentrated on the characteristics of syllogistic reasoning until the essentials of method were clearly established. When formal proof in geometry was first introduced, the steps in reasoning were shown to be specific applications of the principles learned in connection with syllogisms. "The emphasis throughout," according to the report, "was on the *method of procedure* and only secondarily on the geometry. To be sure, the geometry had to be learned and organized because it was the basis of reasoning. But the aim was never to allow the details of geometry to obscure the analysis of the thought processes."

Fundamentals of Teaching for Transfer. This constructive attempt to teach a method of thinking illustrates two of

the most fundamental principles of teaching for transfer. Many students never see beyond specific details to the underlying relationship or principle. Unless they are taught to do so, they are unlikely to disentangle *methods of thinking* from certain *materials*. This is not only true in geometry, but in science, where inductive methods are emphasized. Science teachers stress an understanding of the scientific method as one of the primary outcomes of laboratory work. But too frequently, students do little more than follow routine procedures. Thus they do not themselves get practice in the scientific method. Moreover, they do not identify the attitudes and abilities associated with scientific procedures. This means, essentially, that the basis for the transfer of methods of thinking has not been laid. If one is to acquire methods of thinking which are generally applicable and consistently applied, he must first attend to the techniques and procedures of problem solving. Then he must generalize those processes so that they are not tied merely to one type of material or situation. Finally, he must get experience in using these methods in solving many sorts of problems.

This last step has been emphasized by a mathematics teacher who has recommended definite procedures for developing broadly useful methods of thinking in a school subject "for which unbridled claims of transfer values are made without any apparent responsibility for specifying means and methods."²¹ This teacher believes that it is possible, through instruction in demonstrative geometry, to learn to draw inferences logically, and, if taught with transfer in view, to apply this ability to other life activities. He built the content of his course around an understanding of the importance of definitions and agreements. The significance of these two factors in proof was illustrated not only in geometry, but in many other situations, including games, political problems, advertising schemes, and the derivation of scientific principles. Whatever the specific illustration, the teacher emphasized the principle that "any change in either a definition or an agree-

ment was likely to change the conclusion." The members of the class constructed theorems of their own, and so through their own experience came to understand the necessity of treating agreements and assumptions rigorously. The purposes were to recognize that conclusions "depend on the definitions and assumptions from which they were deduced," and that conclusions are true "only to the extent that these definitions and assumptions are true." The primary objective of the entire course was, not to cover a certain number of theorems, but to have the pupils learn the nature of proof and give them experience in systematic thinking about the problems of modern life.²²

This sort of teaching should stimulate the only kind of behavior that will make transfer possible in substantial degree, namely, a deliberate effort to utilize in meeting new problems what one has previously learned. Through constant application of principles to specific situations, the student should discover the relationships between what he learns in school and what he does in life. To accomplish this end, teaching must have two objectives, which have been concisely stated: "First, it must bring the student to understand as many widely useful relationships, principles, or generalizations as possible; second, it must whet the student's realization that his previous training has wide possibilities for transfer, but that transfer is never automatic. It must bring a realization that transfer comes only if and when one senses for one's self that transfer is possible."²³

Effect of Attitude on Transfer. The consciousness that one is acquiring meanings and abilities which are widely applicable in learning and living is what creates a frame of mind favorable to transfer. The influence of attitude on transfer has been studied experimentally. Three groups of college students were used. One group had been given instruction in how to study; another was studying Latin for the fourth year; and the third had just completed a course in descriptive geometry. Each of these groups was divided into

two equivalent sections. Then both sections of each group were given a task to perform which was related to their recent training. The only difference in presenting the task was that one of the two sections in each case was told that their previous training would help them in the performance. This suggestion, of course, was designed to create the attitude that the previous experience was applicable, transferable, and to evoke direct effort to utilize it intelligently. The method was effective. In all three kinds of tasks, the sections which received the suggestion made superior records.²⁴

This experiment calls attention to one of the reasons why specific learning so often remains specific — fails to spread to other situations or influence subsequent activities. If one learns a specific response to a particular situation, and no question of the applicability of that behavior to other conditions is considered, transfer is unlikely except to situations that are so similar they are almost identical. Moreover, what is merely specific does not acquire the characteristic of transposability. On the other hand, what one thinks of as *general* is useful beyond the particulars in which it is learned; one *expects* it to be applicable and relevant in many other situations. This attitude is all-important in inducing transfer.

Important as it is, however, this attitude is not enough. One must make an aggressive attempt to interpret new problems in the light of previous experience, and to bring to bear upon the novel situation those understandings and abilities which are relevant and serviceable. Teachers often complain that their professional courses proved to be of little assistance in actual teaching. This lack of practicality may be due to several causes. The professional courses may have been *too specific*, that is, they may have attempted to give the prospective teacher a set of particular devices or a collection of specific "methods" without giving him an understanding of the fundamental principles of learning to guide practice as new educational problems arise. On the other hand, courses in education are often too general and too exclusively verbal.

General principles are discussed without contact with pupils and classroom activities, and too infrequently applied to typical educational problems and practices. Under these conditions, one may justifiably doubt that students really understand the generalizations; what they learn is probably little more than mere verbalism. But no instructor can make the transfer for the student or the classroom teacher. Each individual must make a systematic effort to apply in teaching what he has learned in professional sequences. If he did so, he would discover that his training had been far more useful than he might otherwise concede.

Transfer Eventually a Process of Adaptation and Reorganization of Experience. Education that facilitates transfer is, fundamentally, education that promotes individual adaptability. Orata, who has long been a critical student of the theory and the research on transfer, has pointed out that desirable flexibility of behavior cannot be attained by teaching the pupil merely to apply, rigidly and mechanically, the general principles he has previously learned. He must be alert to the requirements of the new situation, and be quick to see whether the general ideas he brings to it really meet these requirements. Furthermore, through his learning experiences he should acquire the willingness and ability to change his generalizations and conclusions to meet the demands of changing conditions. So, says Orata, “. . . we can *train* the individual in such a way that he behaves like an automaton, or we can *educate* him so that he can act intelligently.”²⁵

In the sense of adaptability, transfer rests upon the continuous reorganization or reconstruction of experience. As Orata has pointed out, “progressive education” in practice has often valued experience in and for itself, and has neglected the continuity and organization of experience. In too many instances, the curriculum of progressive schools which have discarded the traditional subject organization now takes the form of a series of “activities” which show little relation to

one another and do not lead to progressively more mature meanings and to more comprehensive organization of ideas. The dispersiveness which characterizes an unorganized and discontinuous series of "pupil-centered activities" may be much less educative than learning a well-organized body of subject matter. Some kind of logical and functional organization of experience is necessary if it is to be truly developmental. In Dewey's words, "No experience is educative that does not tend both to knowledge of more facts and entertaining of more ideas and to a better, more orderly arrangement of them."²⁶

NEGATIVE TRANSFER

We pointed out early in the chapter that the effects of transfer may be detrimental, as well as beneficial. It is customary, therefore, to say that transfer may be either positive or negative. Most illustrations of supposedly negative transfer are actually instances in which the *effect* of the transfer is negative. So Woodworth explains that "When an act is carried over but impedes the learning of a second act we obviously have positive transfer but a negative transfer effect."²⁷ A child who has been using phonics in reading often spells new words phonetically. Since English spelling is so often unphonetic, he is likely to spell these words incorrectly. But this is an illustration of the *negative effect* of positive transfer. It would be defensible to call these incorrect spellings "intelligent errors." Carroll actually found, in comparing the generalization of bright and dull children in the fourth and fifth grades, that the bright subjects were much more likely than the dull to spell phonetically. He attributed this to the superiority of the bright children in generalizing ability.²⁸ The same mental processes are probably responsible for the fact that children who have studied specifically such words as "canoe," "canoeing," and "indicate" may, when confronted with the necessity of spelling *indicating*, make it i-n-d-i-c-a-t-e-i-n-g.

Negative effects also occur when one carries over to new performances mental sets, methods of procedure, and ideas which are inappropriate. To illustrate this point, try out this conundrum on your friends: There was a blind beggar who had a brother; the brother died, but the brother who died had no brother; what was the relationship between the blind beggar and the brother who died? Because most of us have the mental set that a blind beggar is a blind *man*, we are likely to be confused by the situation.

Carrying over inappropriate methods from one situation to another has sometimes resulted from an overemphasis on speed of reading. Students who have been drilled on exercises for improving reading rate may attempt to read rapidly without discrimination, instead of adjusting their speed to the nature of the material or the purposes for which they are reading.

THE RELATIVE VALUES OF DIFFERENT SUBJECTS

There remains for consideration the possibility that certain school subjects and activities are intrinsically superior to others as a means of broadly developing mind and character. Thus it has been urged that some subjects provide exceptional opportunities for encouraging the growth and transfer of desirable behavior. It might be argued that shopwork is especially effective in developing originality and inventiveness; that mathematics, because of the clearness of its logic and definiteness of its tests, cultivates ability to reason; that Latin, because of its difficulty, schools concentration and persistence

Thorndike's Study of the Influence of Various High School Subjects. Of the many studies of the influence of training in particular subjects which have been made, certain investigations by Thorndike are by far the most suggestive.²⁹ He undertook to determine to what extent a year's training in each of the many high school subjects would increase ability in a series of tests of "selective and relational thinking"

or reasoning. About 13,500 pupils in grades ten, eleven, and twelve were subjects. The studies were conducted in such a way as to show the relative influence of different groups of related subjects upon ability in the reasoning tests. The relative influences are indicated in the following table, which shows how much different groups of subjects exceeded, or fell below, the average effects made by the subjects in Group 7.

<i>Group of Subjects</i>	<i>Relative Influence</i>
1 Algebra, geometry, trigonometry, etc.	+3.0
2 Civics, economics, psychology, sociology	+2.9
3 Chemistry, physics, general science	+2.7
4 Arithmetic and bookkeeping	+2.6
5 Physical training, athletics	+0.8
6 Latin, French	+0.8
7 Business, drawing, English, history, music, shop, Spanish	0.0
8 Cooking, sewing, stenography	-0.1
9 Biology, zoology, botany, physiology, etc.	-0.2
10 Dramatic art	-0.5

Thorndike's comment on these results is "The differences are so small and the unreliabilities are relatively so large, that the influence of the subject studied seems unimportant."³⁰ The conclusion suggested, then, is that, in representative high schools at the time the investigation was made (it was reported in 1924), a year's training in cooking, sewing, physical training, or bookkeeping had about as much effect upon "general power to think" as an equal amount of instruction in algebra, civics, physics, or Latin. Indeed, one subject was about as good as another.

The implication of these investigations is that no one subject, because of the intrinsic character of its organization or subject matter or procedure, has outstanding merit as an easy and sure means of developing ability to think in general. This conclusion should be considered in connection with the results of experiments which show that the influence of the learning depends greatly on the way the subject is taught and learned. Mathematics may be made a mere exercise in rote memory of barren facts, distasteful and largely futile, or it

may be made an absorbing study of real life problems activating the finest techniques of reasoning and imagination. What the effects of studying a subject will be cannot be foretold from the name of the subject, or even from its historical prestige. The degree of transfer, to repeat, depends upon the applicability of the outcomes of learning and upon the degree to which their utilization in new settings is provided for by guidance and experience.

The Relation of Transfer and Original Ability. A significant outcome of Thorndike's investigation of the influence of high school subjects upon "selective and relational thinking" in general was the fact that the amount of transfer made by pupils who were good thinkers to begin with was much greater than the amount made by poor thinkers. The pupils who were in the highest one per cent in the initial tests of thinking (that is, the best pupil in every hundred) made an average gain of 20.5 points on the final tests, whereas the pupils in the lowest one per cent made an average gain of only 1.5 points. The best thinkers gained nearly fourteen times as much as the poorest. The original ability to acquire facts, perceive relations and other subtle components, to generalize and manipulate data in reasoning, far exceeds the advantage of one subject over others as they are now taught. Although there are certain exceptions, experiments on transfer show in general that it is positively related to intelligence. The brighter individuals not only learn more, acquire more complex meanings, and generalize more effectively, but they are more successful in utilizing their experience in further adjustments.

SUMMARY

Whether transfer does or does not take place is no longer an issue. The evidence clearly demonstrates that we can carry over what we learn to novel situations. The amount of transfer varies with the individual, the difficulty of discovering the essential features in successive situations, and the methods by which learning is done. It is sometimes extremely

meager, and in occasional instances encouragingly large. Nearly always, however, the amount is less than we expected or wished it to be. In any event, transfer seldom occurs automatically. The fundamental educational problem, therefore, is to discover and establish the conditions which are most conducive to the effective utilization of experience. The important question is what methods of teaching and learning will be most productive of transfer.

The answer to this question is by no means complete as yet. Nevertheless, the results of recent experiments have given us the fundamental cues to the solution. These investigations indicate, first of all, that the more meaningful the learning, the more likely it is to transfer. Rote learning, routine and blind rule-of-thumb procedures, and empty verbalism are almost certain to give disappointing results. Where these characteristics dominate, not much learning has occurred in the first place; therefore, there is actually nothing to transfer. If one does not learn to think in mathematics, it is obvious that his courses in mathematics cannot improve his general ability to reason. Transfer depends upon understanding. Second, what always remains merely specific is not available for transfer, because its significance is restricted to the details in which it first was learned and successively practiced. As the essential relationships in experience are discovered and generalized, learning becomes meaningful and what is learned becomes more available for wide application. Learning to think means identifying the methods of successful learning, generalizing them with full meaning of their character and significance, and deliberately applying them in solving practical problems. Finally, the extent to which one utilizes his learning in a wide range of affairs depends upon the alertness and the aggressiveness with which he puts his experience to work. Transfer is not automatic. It depends upon a deliberate attempt to interpret new situations in the light of past experience, and to apply appropriately the meanings or methods previously learned.

QUESTIONS AND EXERCISES

1. If one spoke English until ten years old, then spoke only German for ten years, would the ability to speak English decrease more or less than if one had not spoken at all — that is, had lost the power of speech for the second ten years?
2. William James, in his chapter on "Habit," wrote "As a final practical maxim, relative to these habits of will, we may, then, offer something like this: *Keep the faculty of effort alive in you by a little gratuitous exercise every day* That is, be systematically ascetic and heroic in little unnecessary points, do every day or two something for no other reason than that you would rather not do it, and so, when the hour of dire need draws nigh, it may find you not unnerved and untrained to stand the test." Examine this statement critically and determine what the conditions would have to be for it to agree with the doctrine given in the text
3. What reactions acquired in playing the piano would transfer to typewriting? To singing? What negative transfer might take place?
4. What is the relation between transfer of training and retroactive inhibition? Give three examples to illustrate the relationship as you see it
5. Give three examples of practical problems in home cookery which should easily be solved by an individual who had had a very elementary course in chemistry. Do you think many girls apply their knowledge of chemistry to home cooking? Why?
6. Make an outline of the principal topics in this chapter and summarize the evidence for each.
7. Compare the implication of James's statement above with the following by Thorndike "To study the distasteful that is known to be useful is of much greater disciplinary value than to study the merely distasteful. The habit of value is to *suffer that good may come*, not to *suffer wastefully*. It is in sacrificing for a greater good, not in mere sacrificing, that the mind gains. To suffer simply so as to stand suffering would be as foolish as to learn falsehoods so as to be able to unlearn them."
8. Children often can distinguish right action from wrong action when answering a questionnaire but they don't always do the right when given an opportunity. How do you account for this?
9. Collect some statements from books on education, general reading, or advertisements which are based on erroneous notions of transfer. Criticize them.

10. Under what circumstances will health knowledge change health habits? Suggest a school program which would foster transfer of health knowledge to habits
11. Suppose it were found in a certain secondary school that the students who had studied geometry were better in reasoning in general than those who had not. Would you consider this satisfactory evidence that training in geometry was responsible for the greater ability in general?
12. Do you think some teachers secure a greater amount of transfer among their pupils than others do? How?
13. Show in detail how the training received in (a) athletic games, (b) grammar, and (c) psychology may be made to function in everyday life.
14. Cite instances from your own experience to show whether the program of the elementary school you attended was aimed at "formal discipline" or "social utility." What changes would you recommend? Be specific.
15. A woman aged thirty and her daughter aged six came to the United States from France. Why, after two years of practice, does the daughter speak more perfect English (meaning here merely accuracy of articulation) than the mother? If both had secured the same training during the two years, which would probably have developed the larger English vocabulary (knowledge of meaning of words)? Explain
16. Individuals who have learned many languages report that the first three or four were the hardest. What is the nature of the transfer of training which has occurred?
17. On the basis of the *general* value of studies, what changes would you recommend in the curriculum of the high school from which you were graduated?
18. Will reading good literature contribute to your ability to write? To get the greatest transfer, just *how* should you read?
19. Use the material in this book or any other source to aid you in making a list of ten methods you would use to make arithmetic meaningful to fourth grade children. Can the teacher guide the children in making generalizations from the material? How?
20. In what two ways can you "generalize" the material you have studied in this chapter to practical situations in your other courses or your daily living?
21. How would you train a child to meet emergencies (as in cases of fire, accidents, drowning, etc.)? To what degree will mere knowledge of what to do function in face of an emergency?

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CHAPTER XVI

Tests and Measurements

The improvement of education depends upon the possibility of determining the changes produced by any educational policy or procedure. Unless the teacher can tell what improvements in reading are produced by teaching word analysis rather than spending the time in reading stories, or by allowing the pupils to have a daily free reading period in the library as compared with a period of classroom oral reading from a single text, he cannot discover which of these alternative plans is better. In American schools today there are in use literally scores of different practices the relative values of which are unknown and can be discovered only by determining the effects each of them produces in a particular situation. These alternative practices (and many others which appear from day to day) vary all the way from devices designed to produce a very special skill to broad, educational policies concerned with many educational objectives. The dozen or more different devices suggested for helping pupils shift from reading one word at a time to reading several words in thought units are examples of the former, and the dozen or more types of curriculum organizations including "project," "activity," and "school-subject" policies suggest the latter. In any case, improvement in education depends upon trying out different devices, methods, materials, and policies in comparison with each other and being able to tell what differences, if any, are produced. In order to determine reliably what differences are produced, we must have reliable and valid tests.

TYPICAL USES MADE OF TESTS IN EDUCATION

It should be noted that the preceding chapters in this book are based largely upon the results of comparisons of two or more plans. As a matter of fact, the validity of the suggestions based on such experiments is limited by the degree of accuracy and thoroughness with which the effects of the procedures upon the pupils were revealed. In other words, all experimental or scientific investigations in education are dependent upon our ability to determine the degree and kinds of changes brought about in pupils' activities by different practices.

The need for valid — that is, true and accurate — determination of the changes in pupils produced by an educational device or textbook or method or procedure is not restricted to the "scientific investigator." The school superintendent, the principal, the supervisor, the librarian, the teacher, indeed everyone involved in education has quite as crucial a need to determine accurately the results produced by anything employed to educate the children in their school. All officers of the school need to know the results obtained by a special emphasis on some phase of the curriculum, or by a new method of instruction, or a special series of texts or a laboratory, or the addition of a supervisor or guidance officer, or a change in the plan of grouping or promoting of pupils, or a new type of library service, in order to find out how to improve the work of the school. How otherwise can they tell what factors will yield the best results? Only definite appraisals of the progress and difficulty of pupils will reveal policies that should be continued and practices that should be modified or discarded in the system as a whole.

Unless the teacher can test accurately the results of his teaching, he will find it difficult to improve his instruction. Not only must the teacher know the effects of his procedures on the class as a whole, but he must also know the results in the case of each individual pupil. This fact has been stated repeatedly in various connections in preceding chapters. It

has been repeatedly pointed out that, if a teacher is to assist the pupil, he must be able to determine what the pupil has learned and failed to learn. The pupil's difficulties must be exactly diagnosed so that they may be remedied; his desirable attainments must be identified so that they may be fostered. Indeed, the pupil himself should know, as far as possible, not only what he is trying to learn, but also in what respects he is succeeding and failing to make progress.

Values of a Comprehensive Program of Testing. Every experimental and theoretical consideration points to the importance of providing a comprehensive program of measuring or otherwise determining the pupil's progress in the schools. The better schools during recent years have devoted special attention to the development of well-planned programs of appraising the outcomes of teaching and of keeping permanent records of the more important results obtained. The permanent records usually contain not only results of tests and appraisals of the special school subjects and activities but of examinations of intelligence, vision, hearing, etc.; of appraisals of interests, personal characteristics, hobbies, home background, special attainments and difficulties, and many other data of value in arranging the most fruitful conditions for growth and learning. Most schools recognize the fact that the needs of school children can be successfully met and progress in education made only when definite information about individual pupils, classes, schools, and the system as a whole can be made available to the various school officers.

The importance, indeed, the absolute necessity of securing valid determination of the results obtained by educational practices will be obvious to anyone trained in one of the basic sciences and in such professional practices as medicine and engineering. It will be obvious that medicine advances only as it determines at least the crucial effects of various treatments that are tried out, or that an engineer can improve a motor only as he can determine accurately the effects produced by an innovation in it. Those to whom these are

obvious facts may be surprised to realize that not until after the turn of the present century was the problem of determining the accuracy of appraisals of the effects of education given serious consideration.

A BRIEF SKETCH OF THE TESTING MOVEMENT

The First Tests. We noted in Ch. VII that the first scale for the measurement of intelligence, the Binet scale, appeared in 1908. Although a few "tests" of ability in school subjects appeared earlier than this (J. M. Rice, for example, developed a spelling test in 1894), the serious study of methods of testing in education was begun at about the same time by Edward L. Thorndike in America. The first educational *test* (the Stone Arithmetic Test) was published by one of his students in 1908, and the first *scale* (the Thorndike Handwriting Scale) was announced in 1909 and published in 1910. The whole field of testing and measurement, appraisal and "evaluation," in education is so young, in fact, that the teacher may expect to find a good deal of confusion, disagreement, and dogmatic opinion in it as in any new area.

Unreliability of School Examinations. Before the "testing movement" (as it is often called) got well under way, the progress and difficulties of a pupil were appraised entirely subjectively by the teacher. He secured his data by noting the pupil's responses in oral recitations or discussions or in written notes, reports, or blackboard activities and, usually, by giving periodic oral or written examinations. The appraisal was largely subjective; that is, it represented the teacher's own judgment of the amount and quality of what was learned. Since typically only the teacher observed the pupil's work in oral activities, it was difficult for anyone to find out how well he appraised his pupils. The validity of a teacher's appraisal of written examinations, which were usually the "essay" type, in which the pupil wrote answers to questions or discussions of a topic, could be and promptly were investigated.

The results were very disconcerting. For example, Starch

and Elliott ¹ had facsimile copies of the same paper in geometry (which one would suppose would be easier to grade than essays in literature, history, etc.) graded on a scale varying from 0 to 100 by 116 high school teachers of mathematics. The scores ranged from 28 to 92. In another one of the earliest studies, Starch ² found that college instructors assigned papers very different marks when they regarded them after an interval of time, unaware they were reading the same papers. Later studies have produced evidence of similar lack of reliability in grading papers. For example, Hulten ³ found that twenty-eight high school English teachers who graded an English composition twice at an interval of two months were quite inconsistent. Fifteen teachers showed a shift in judgment that would have changed the paper from a passing grade on the first test to a failing grade on the second. On such examinations, teachers cannot consistently agree with other teachers or with themselves. Thus, subjective appraisal of essay type materials are subject to large errors — errors and inconsistencies so great as to be detrimental to good teaching as well as to fair grading and promotion.

Since this early period of study of tests and examinations, research in the field of measurement and appraisal has been very active and extensive. It also has become highly technical, utilizing intricate statistical and experimental procedure of which only specialists are masters. In a text of this type, we can consider only a few of the general characteristics of modern instruments and practices, leaving the technical details for more advanced courses and texts. It will be advisable to begin with a description of a few of the commonly used terms. In this chapter, we shall deal chiefly with what are sometimes called *objective, standardized tests* or for brevity *standardized tests*.

VARIETIES OF OBJECTIVE TEST ITEMS

The "measurement movement" resulted in the rapid development and wide use of what are usually called "new type," objective tests. Following are a few examples.

The Multiple-Choice Test. This type of test consists of a number of test-items each of which provides several (usually three to five) alternative responses, one of which is correct or better than the others. For example,

The Pilgrims came from

Germany England France Spain.

Why do oranges not grow well in Canada?

1 There is insufficient top soil

2 There is too little rain

3 It is too cold in winter

4 Canadian soil is too alkaline

I borrowed a dime 1 off my brother.

2 off of

3 from

A multiple-choice test in a school subject consists of a number of such items usually in printed or mimeographed form. The list of items can also be read to the class. The pupil indicates his choice by underlining the chosen item, or writing its number, etc. The test is usually scored by determining the total number of items correct. Each pupil's list of choices may be studied by the teacher to see what kind of mistakes were made and to gain greater insight into the pupil's understandings and misconceptions.

Alternative-Response Test. This type of test consists of a number of items each of which provides only two possible alternatives, of which the pupil must choose one. The true-false test is probably the best known form. Following are a few examples:

Mark each statement True or False (or T or F or + for true, - for false)

Psychology is the scientific study of plants True False

Does the average rainfall in New York City exceed 50 inches per year? Yes No

I want everyone to help — himself — themselves

This type of test is given and scored in the same general manner as the multiple-choice. Many prefer to obtain the

total score by the formula: Score equals number right minus number wrong, in order to discount the lucky guesses.

Matching Test. This test consists of a column of items each of which is to be matched with the appropriate item in a second column. The items may be words, phrases, sentences, or paragraphs. The following is an example.

Directions In the parentheses after each geometric condition given below in column 2, write the number of the results in column 1 that could be proved by it

Column 1 (Results)	Column 2 (Conditions)
1 Angles equal	66 If two opposite sides are equal and parallel () 66
2 Triangles congruent	67 If perpendicular to the same line () 67
3 Triangles similar	68 If the sides are proportional () 68
4 Lines parallel etc	69. If they have equal arcs () 69

Completion Test. This type of test consists typically of a sentence or paragraph from which one or more words or phrases have been omitted. The pupil is to fill in the spaces to produce the correct meaning, as in the following illustrations.

This is an example of a — test

In this type of completion test, the pupil must recall the necessary word or phrase. This test could, however, be easily converted into a multiple-choice type of recognition test by supplying several alternatives, thus

This is an example of a — test
completion matching multiple-choice

The last item makes an unsatisfactory test item because it includes both the completion and the multiple-choice test features. It illustrates a major difficulty in the construction of all such test items — the difficulty in devising clear-cut, unambiguous issues. It illustrates also the fact that all sorts of combinations of and variations from the “typical” test types are to be found in objective examinations.

Simple-Recall Tests. The simple-recall test is similar to the completion exercise except that the pupil supplies the answer, usually a word or phrase, not to fill a blank space in a sentence, but to answer an implicit or explicit question, typically the latter, as in the following.

Who invented the telegraph? —
What is the chemical formula for water? —

If the last exercise is changed to the following form: The chemical formula for water is —, it becomes a completion test; if a series of formulas, only one of which is correct, is provided, it becomes a multiple choice. These examples illustrate the fact that although there is a clear psychological difference between the recall type, in which the correct response is not given, and the recognition form, in which the answer is provided, the differences in form between the types of devices are often not very clear. It may be noted in passing that there is really nothing very revolutionary or "new" in the form of these exercises. Most of them, and other similar ones, have been used for decades by children in their play in the home and kindergarten in "Guess What" and other games. The contribution of the testing movement is to be found in the careful use of such simple, objective items in constructing tests.

TYPES OR ASPECTS OF ABILITY MEASURED BY STANDARDIZED TESTS

Standardized Test Defined. A typical standardized test consists of a number of items such as those illustrated in the preceding section. When the test of such items is made up by a teacher for local use, it is usually called a *teacher-made* or *informal test*. When the test is made up for wider use and published with detailed directions for giving it, scoring the answers, and interpreting the results, typically by using a table of "norms" of some type, the test is usually called a *standardized test*. We shall discuss "norms" and their uses presently, but

before doing so it is useful to note that what a test measures is determined in part not only by the character of the items but also by their arrangement in a test and by the method of giving the tests and scoring the pupil's responses. For example, tests may be organized, given, and scored to measure primarily the difficulty or level of performance, or speed, or range, or accuracy, or some other quality as well as a combination of these features. A few illustrations will make this clear.

Difficulty, Altitude, Power, or Level Test. This type of test is designed to determine how difficult a task a person can do or how difficult a problem he can solve. The test consists of a series of exercises arranged in order from the easiest to the hardest. Following are a few samples from a reading test which show the range of difficulty covered in a test for elementary and junior high school pupils.^b The pupil begins at the easy end of the test and goes as far up the list as he can in the time allowed. In most tests of this type, a liberal amount of time is allowed; otherwise the test would probably become a test of *speed* rather than power or difficulty level. Thus, in the reading test, one determines primarily not how fast a pupil can read but how difficult or complex a passage he can comprehend. Power tests of this type have been developed for practically every school subject and for many other performances.

Level of Comprehension

Directions: Read the paragraph. Note the blank spaces marked *A* and *B*. Note the lines of words marked *A* and *B* under the paragraph. Draw a line under just one word in line *A* which makes the best sense when put in blank *A*. Draw a line under the one word in line *B* which belongs in blank *B*. If a paragraph contains three blank spaces, the third one will be marked *C* and a row of words marked *C* will be given. Draw a line under the word which belongs in blank *C*, just as you did for *A* and *B*.

- 2 Gray Squirrel lived in the woods. He worked hard in the fall. Every day he gathered nuts. He hid them in a hole.

When the *A* came, he had
 . *B* to eat.

A winter boat leaves train squirrels
B holes shells food days wood

16. Farmers feed soy beans to their animals. Soy beans are also used in making plaster, buttons, and steering wheels for automobiles. Oil from soy beans is used in making paint and ink. *A* plant with such a variety of . *A* . .
 is of great ... *B* .. .

A time energy uses space taste
B loss height depth size value

30. In every country a small group concerns itself with the affairs of the government. The vast majority cares little about public affairs. This does not mean that the minority always rules the . *A* . . , because unless the minority considers the . . . *B* . of the majority, the latter may set up new . *C*

A minority king business affairs majority
B. wishes tastes housing rules complaints
C. codes stakes rulers signals concerns

35. Every important satisfaction of an old want creates a new one, and this new want has to enter upon an experimental

A .. to find its satisfaction. Judged from the side of what has gone before, achievement always settles something. Judged from the side of what comes after, it complicates, introducing new . *B* . and unsettling factors. There is something pitifully juvenile in the idea that . . . *C* . means a definite sum of accomplishment which will *D* . stay done.

A train certainty adventure article community
B problems expenses dreams appetites languages
C honesty war taste progress revolution
D. not forever nobly cheaply intimately

Speed Test. The speed test is usually designed to measure the amount of work of a uniform quality and difficulty which a pupil can do in a given time. A definite time limit thus becomes the indispensable feature of this test. Thus, to

measure *speed* of reading, one develops a test consisting of a number of passages of equal difficulty and sets a time limit which is insufficient for the pupil to read *all* the passages. The score is then the number read with the degree of accuracy stipulated by the directions for scoring. Speed tests are mainly restricted to important *skills* such as speed of reading, writing, typewriting, locating items in a dictionary, computing in arithmetic, etc.

Range Test. The range of information or skill can be measured by determining the number of correct responses given or tasks correctly executed out of a number selected to cover a particular field. Such tests are employed to survey the pupil's knowledge of a field in history or other subjects or of ability to do the fundamental operations in arithmetic or stunts in athletics, etc. In a pure range test, the time allowance must be liberal so as to eliminate the factor of speed of performance which may be measured separately.

Accuracy Tests. In reading, typewriting, spelling, arithmetic, and other subjects it is often highly important to measure the accuracy of performance. This can be done by using a series of exercises of uniform difficulty. The accuracy of the pupils' work can be indicated by the percentage of errors made in a test. The accuracy of work can, for technical purposes, be determined by making corrections and allowances that render the speed practically the same for every one. Then it is possible to show how accurately the pupils would work at this or that particular speed.

Quality Tests. The objective appraisal of quality has offered one of the most difficult problems to students of measurement. Quality means different things in handwriting, art, sewing, English composition, drawing, singing, composing music or poetry, etc. The Thorndike Scale for Quality of Handwriting,⁶ the first of the type to appear, is shown in part in Fig. 26. Such a scale is used as follows: First the pupil is given a standardized test in writing. Competent judges slide this sample up and down the scale, in a standardized way,

until they find a sample on the scale which matches the pupil's product. The number, which indicates the degree of quality in that scale sample, becomes the quality score for this child.

It is apparent that this practice involves the subjective judgment of the person who compares the pupil's specimen

- QUALITY 4 *seated on the curb was my*
- QUALITY 6 *gathering about them melted away in an instant leaving only a poor old lady*
- QUALITY 8 *moved along down the driveway. the audience of passers-by which had been gathering about them melted away*
- QUALITY 10 *driveway. the audience of passers-by, which had been gathering about them melted away in an instant leaving only a poor old lady on the curb. Albert was sadly sticking*
- QUALITY 12 *lightly into Warren's carriage and held out a small card, John vanished behind the bushes and the carriage moved along down the drive*
- QUALITY 14 *Then the carelessly dressed gentlemen stepped lightly into Warren's carriage and held out a small card, I*

FIG. 26. SPECIMENS FROM THE THORNDIKE SCALE FOR QUALITY OF HAND WRITING

The samples are greatly reduced in size and only a few of the specimens at a few of the steps are shown. The original includes several specimens for each step from Quality 0 to Quality 18.

with the scale. By systematic training, however, many persons can become very expert. Reliability can be further increased by securing the independent judgments of *several* experts.

Mixed Tests. Tests, then, may be devised to measure how hard a task one can do, or how many facts or skills one has acquired, or how rapidly or accurately or otherwise excellently one can perform. The speed, range, accuracy, or quality of performance may be measured at any one of several levels of difficulty. Many tests combine measurements of these elements in different ways in order to secure a rough estimate of general all-around ability. Unless a test measures a single factor such as speed or difficulty, with the others held constant, it yields only a rough and general measure.

One of the faults of many standardized and informal tests is uncertainty concerning which type of test it really is. For example, it has been repeatedly demonstrated⁷ that the correlation between level or power of comprehension in reading and speed of reading easy material is not very high and that some of the pupils who get high scores on a level test read easy material very slowly, and *vice versa*. Unless the examiner knows whether he is testing *speed* or *level* of comprehension, he is unable to make good use of the scores obtained. Indeed, he is likely to be misled if he assumes that the test measures both features or the one which it does not measure. For example, to assume that a high score on a level test means that the pupil is a fast reader may result in the neglect of needed help in increasing speed. This illustrates one of the many points to be considered in determining the *validity* of a test, which will be discussed presently. In general, the examiner should know what aspects of performance or what combinations of speed, level, range, accuracy, or other qualities a test really measures.

THE USE OF DERIVED SCORES AND NORMS

By checking the answers or responses to a standardized test and totaling the scores according to the method prescribed for

that test, one obtains a numerical value or *score* usually called the *raw score*. Thus Pupil *A* in grade 4 obtained the following *raw scores*. Speed of computation in arithmetic, 36; difficulty test in arithmetic, 17, speed of reading, 12; power or altitude of reading comprehension, 22, accuracy in reading, 82; spelling, 10.5. These *raw scores* obviously mean little as they stand. The reader doubtless has no idea whether *A* is, on the whole, good or poor for his age or grade or in what abilities he is relatively strong or weak. These raw scores can become meaningful only when they can be converted into a common score which permits direct, meaningful comparison of one with others. Such scores are widely used; they are usually called *derived scores*.

Types of Derived Scores. Most of the derived scores now in use depend upon one of the following three types of comparison:

1. Comparison of a pupil's score with the abilities of average pupils at *different ages*
2. Comparison of a pupil's score with the abilities of average pupils in *different grades*.
3. Comparison of a pupil's score with the abilities of different pupils of the *same age or grade*.

The scores resulting from these three types of comparisons are usually called the *age score*, the *grade score*, and the *scale score*. The methods of constructing such scales are so technical that no attempt will be made here to describe them. We shall merely try to indicate roughly what each type means.

The Age Score. The principle of the age score for achievement tests is substantially the same as that underlying the mental age scale, previously illustrated in our discussion of the intelligence tests. Just as a score on the intelligence test can be translated into a mental age so a raw score obtained in a test of educational attainment can be translated into an educational age. Likewise a score on a particular reading test can be converted into a reading age. To obtain an educa-

tional age of ten years then, means to have the educational ability of the average ten-year-old pupil; to have a reading speed age of ten years means to be able to read as well as the average ten-year-old pupil.

When the *raw* scores listed on page 556 are converted into age scores, we get the following

Speed of computation, arithmetic	9 0 years
Difficulty of problems, arithmetic	10 0 years
Speed of reading	9 0 years
Level of comprehension in reading	12 8 years
Accuracy of reading	11 0 years
Quality of writing	12 0 years

This pupil stands highest in level of comprehension in reading and quality of writing, lowest in computation in arithmetic and speed of reading, and between the extremes in arithmetic problems and reading accuracy. These facts were not apparent in the raw scores.

The Grade Score. In securing the grade score, the pupil's raw score is converted into an average grade status, instead of an age position. Thus, if a pupil's score in an educational achievement test is equivalent to the average raw score of pupils at the beginning of grade 4, this pupil secures a grade score of 4.0; if his score is equivalent to the average score of pupils in the middle of grade 4, he will be given a score of 4.5, and so on. To secure a reading grade of 4.0 means to have the reading ability of the average pupil at the beginning of the fourth grade. In passing, it should be said that intelligence test scores can also be converted into grade scores as well as age scores. Thus, to have a mental grade of 4.0 means to have the intelligence of the average pupil at the time of beginning the fourth grade.

Scale Scores. A variety of types of *scale scores* are in use. In most of them, the scale is derived from the distribution of pupils of a given age (or grade). In the preceding chapter, we found that a group of pupils of a given age (or grade) differ widely in ability. If you have large representative groups of

a given age (or grade) the scores vary from very low to very high in a way that approximates more or less closely the normal curve of distribution, which is similar to the curve shown in Fig 10 (see Ch. VIII). It therefore becomes possible to convert a pupil's raw test score into a number indicating his position in this distribution. The simplest score, mathematically, is the percentile score, varying from the lowest or zero percentile, through the median or 50 percentile to the highest or 100 percentile score. Other scores, derived by more intricate statistical methods, are similar in the fact that they express a person's status in terms of his position in a group, typically a representative group of his own age, or school grade.

Relative Merits of Age, Grade, and Scale Scores. In a general way it may be said that certain types of scale scores are most useful for precise, scientific work and that the age and grade scores are more widely used in practical school-work. The merit of certain scale scores is the greater equality of the steps in the series of scores. It approaches more closely the thermometer or footrule in which the steps on the scale, degrees of temperature or inches, are substantially equal. For ordinary use the age and grade scores have proved to be distinctly serviceable. They have the advantage of embodying none but everyday conceptions; the average achievement as a basis, and the year or grade as units or steps. They are readily understood by parents as well as teachers; they are simply and speedily constructed. Teachers are, however, becoming more familiar with various other scale scores and are using them increasingly in practical work.

Meaning and Significance of Test "Norms." The age, grade, or scale scores which you see printed in the manuals for educational tests are sometimes called norms. You may hear one teacher expressing satisfaction because his class tested "above the norm" and another voicing dismay because his group fell "below the norm." Every student should understand once and for all that these scores or the tables from

which they are derived are "norms" only in a statistical sense; they are arithmetical averages and not ideals. They actually depict not ideal but average attainment. Half of the pupils, approximately, equal or excel these "norms," another half only equal or fall below them. The norms are not in any sense standards of excellences, they are merely standards for comparison. They enable one to compare any particular pupil's attainments with the typical or average achievement. The test "norms" throw no light whatever on the question whether the typical or median achievement in any subject is optimum, too high, or too low.

Misunderstanding of the significance of derived scores and norms has caused much mischief in education. It has led many teachers, often on demand of their superior officers, to bring all pupils up to the norm especially in the subjects most frequently tested — reading, arithmetic, spelling, history, and geography. This misuse of norms has been properly criticized extensively in recent years.

Considerable mischief has also resulted from faulty norms, which, of course, produce misleading age, grade, and scale scores. The scores will be faulty unless they represent accurately what they are supposed to represent. They are usually supposed to represent a typical or average or representative group of pupils of the age or grade indicated. Often they do not do so because they are based on too small a number of pupils to give reliable averages or on groups, however large, which are of superior or inferior ability. Sometimes the norms are faulty because of incompetent administration or scoring of the tests or errors in computing the norms. Hence, it is advisable to scrutinize the bases on which the test scores and norms are established.

Essential Characteristics of a Good Test. The preceding discussion revealed several necessary features of a good test. In the first place, the standardized procedures for giving and scoring the tests should be clear and definite so that they may be employed by any competent examiner. It should be clear

what quality or aspect of performance a test measures — whether level of difficulty, speed, range, accuracy, or some combination of these or some other quality such as literary merit in a composition, legibility in handwriting, etc. If a derived score, such as an age, grade, or percentile score is developed, or a table of norms is provided, it should be clear what populations they represent, and they should represent accurately the attainments in that population. Certain other requirements must also be met

The most important problem is that of securing proper validity in a test. This question was really raised in part in the preceding section, especially in discussing such characteristics as level, speed, accuracy, range, and “qualities.” In fact, the following discussion of validity is a further inquiry concerning the determination of the qualities of performance measured by a test. It is the most important inquiry to make about any test. When one raises the question: Does this test measure what the teacher or examiner wants to measure? it is implied that the teacher or examiner knows what he wants to appraise. Indeed, the starting point of all inquiries about tests should be a clear awareness of precisely what one wants to appraise. The question then is: How validly or truly or accurately do available devices measure what I want to measure? And this leads us directly to the problem of objectives in education. It raises the question: What should be measured?

THE CHOICE OF OBJECTIVES TO BE MEASURED

A program of appraisal should begin with a clear and detailed definition of the school's objectives. Schools are attempting to foster growth and learning of many types varying from development of physical vitality, social competence, personality adjustment, desirable attitudes and ideals, emotional balance, intellectual alertness, and sagacity to innumerable more particular understandings, insights, facts, appreciations, techniques, and skills such as those sought in

the various school subjects. The school should attempt to measure the extent to which pupils have attained or are progressing toward the attainment of its objectives. The objectives should be set forth first and then means of determining progress toward them should be sought.

Origin of Objectives of Education. Objectives of education originate from different sources. Many come from the philosophy of education, which makes educational objectives its major concern. "Education should foster the democratic way of life" is an example of an objective derived by philosophy from data secured from sociology, ethics, political science, history, and other sources. Other objectives such as "disciplining the mind," "learning how to think," reflect popular convictions; others such as "learning certain facts in history" reflect the opinions of academic specialists, such as college teachers, in the subject. Many are the direct outcomes of scientific study; for example, the acquisition of certain habits of eating and sleeping or the development of emotional control.

Objectives Often Indefinite. Unfortunately, as Tyler, an active worker in the field of appraisal, declared, "Many statements of objectives are so vague and nebulous that, although they may sound well, they prove to be glittering generalities which are of little use in making examinations."³ The result has been that measurement in education has been confined largely to the more obvious and tangible objectives, to the neglect of many of the more important outcomes. This has been due in part to the inability of the specialist in measurement to find out definitely what the school regarded as its major objectives. It has been due in part to the fact that textbooks and educators have been far from clear and specific even about the facts and skills in the school subjects which they wished to teach and far less explicit about the ideals, attitudes, concepts, generalizations, mental adjustments, social convictions, or "ways of life" which they were attempting to cultivate in various school activities.

Objectives Becoming More Definite. During recent years, however, a concerted effort to clarify the objectives of education in the interest of appraisal and diagnosis has been made. Specialists in philosophy are becoming less vague, and "glittering generalities" are giving way to discussions of tangible objectives and practices. Certain sciences are applying themselves to concrete problems. For example, child development as sketched in Chs. II through VI of this book is finding more and more exactly what types of behavior are desirable in modern life and how changes in them may be produced and identified. Clinical psychology, as will be shown in later chapters, is giving increasingly clear definition to various types of mental adjustments. The study of learning, sketched in Chs. IX through XV, is resulting in clearer understanding of the processes involved in acquiring information and skill, generalizing, reasoning, inventing. Scientific studies are, in fact, responsible for discovering and defining most of the accepted objectives in the elementary school subjects. For example, scientific research revealed what types of reading abilities and interests were of most practical value, what processes in arithmetic are most useful in everyday life, and what words are most frequently read and written. Until certain studies were made between 1915 and 1925, the teacher could not possibly have known that certain "study types" of reading were quite different from various forms of "story reading," and that several new reading objectives must therefore be set up.

During recent years, progress in defining and describing the objectives of the curriculum in more intelligible form has been paralleled by improvements in methods of measuring and appraising statements and in diagnosing difficulties, as we shall see in a later section in this chapter.

Tests Should Measure Important Objectives of Education. The first requirement of a good test, then, is that it shall measure a genuine objective of education. Since time and facilities are limited, the school should use tests to gauge

its progress toward its most important rather than its least important objectives. It should in fact seriously endeavor to appraise progress toward all of its most important objectives. In this and the following chapter we shall discuss the kinds of attainment for which standardized tests and other devices for appraisal are available. It may as well be confessed at this time that for many important objectives in education no satisfactory standardized pencil-and-paper tests are as yet available.

VALIDITY

A test must have a high degree of *validity* to be useful. A test is valid when it measures truly and accurately the ability or quality one wants to appraise. In education, it is assumed that one wishes to measure the progress, in some ability or form of behavior, a pupil has made toward some educational objective. Hence a valid test in general is one which truly and accurately measures the degree of attainment of a specified educational objective. In the case of a published, standardized test the practical question is: Does this test really measure truly and accurately enough for the purpose in hand the ability or quality of performance or behavior which the author claims, or leads one to believe, it measures? This implies that validity does not operate as an all or none principle; it appears in various degrees.

Examples of Invalid Tests. Unfortunately it is often found that a test does not measure what it purports to appraise. A test, published as a measure of ability to compute in arithmetic, turned out to be chiefly a test of speed of handwriting for pupils in grades 3 and above because most of them could do the computations faster than they could write the answers. A test of "general science" proved to depend greatly upon reading ability rather than knowledge of science. Such true-false exercises as: "Dogs are smarter than cats" possess low validity because they will be interpreted differently by different persons. It is not clear what is meant by *smarter* or whether

“smarter” means “in every comparison” or “usually” or “in the average case,” etc. An item as ambiguous as this is unlikely to be valid.

The Determination of Validity. The determination of the degree of validity of a test is the most important and the most difficult task of the test maker. Many methods are used and different methods are needed for different tests. One procedure is to correlate a test with one or more other criteria of the ability. For example, a test of knowledge of algebra may be given to a class and the scores correlated with the teacher's ratings or the final grades for a course in algebra. The correlations are not very satisfactory since the validity of the teacher's ratings and grades are unknown. Another method is to correlate the test scores with the results of a much more extensive survey or examination in the same field. Thus, for example, Willing⁹ compared the results of a new test of errors in composition with the errors found in a number of compositions written by the same pupils. He found that the new test had rather low validity as a measure of punctuation, sentence structure, and grammar (correlations below .55) but a fair validity as a measure of the total freedom of a composite of all kinds of errors. In some cases, validity is estimated by determining the correlation of tests with an ability revealed by experimental devices. For example, Cason investigated the validity of several inexpensive methods of appraising ability to read words “in thought units” as contrasted with word by word reading by comparing results on these tests with records obtained by photographing the eye movements during reading by an elaborate and expensive apparatus¹⁰. In some instances, the validity of a test is estimated by observing the extent to which pupils increase their scores on the test during a period devoted to teaching known to increase the ability. Thus Gates appraised certain reading tests by giving them before and after periods of training in which the pupils gained in speed of reading of a special “merely get the main idea” type.¹¹

Test Item Validation. A procedure known as "test item validation" is coming into increasing use. It consists in supplementary study of the test as a whole by critical evaluation of each item in the test. Each individual item may be appraised by comparing the pupils' performance on it with their status based on teachers' ratings, school marks, etc., or their performance in a more extensive test, experimental situation, or period of work. Another method is to ascertain the extent to which pupils' performances on a single item in a test compare with their performances on the whole test. This is applying what is termed the "test of internal consistence." On the basis of the data thus secured, the items which agree most closely may be selected and a more homogeneous total test may be developed.¹²

All methods of establishing the validity of a test have merits and limitations. Test validation has become so highly technical a field that a text such as this one can offer little more than a suggestion of the nature of the work and an admonition to look to the evidence on the validity of a test before leaping to use one.

RELIABILITY

Methods of Determining Reliability. How much will a pupil's score obtained in a test given today vary from his scores obtained on an equivalent test given on each of one or more successive days? This is the question of *reliability*. One way, probably the best way, of determining reliability is to give each of several equivalent forms of a test on successive days and correlate the results. The correlations will indicate the degree of agreement or reliability. Another, easier method is to give only one test, divide the items into two halves (for example, the odd numbered items in one and the even in the other), correlate the "split halves," and use a statistical device to make the correlation comparable to the figure obtained had two full-length tests been used. Psychologically, the latter procedure is less valid than the former because it

rarely gives full play to the variations in performance between "good" and "bad" days which result from many influences — difference in fatigue, tension, confidence, distractions, etc. — and which affect different tests differently.

The Essential Degree of Reliability. In general, however, it is easier to determine the reliability of a test than its validity. Authors of published tests are expected to give data indicating the reliability of their tests and to indicate the uses which the figures justify. It is usually considered that the correlations between the scores of two equivalent forms of a test obtained from a fairly representative group of pupils of a given grade should be·

- .90 or higher to give a reliable measure of a single individual in the ability tested;
- .70 or higher to give a satisfactory indication of the *average* ability in a class of thirty to forty pupils.

Since the correlations vary with the range of ability in the groups, however, and since the necessary degree of reliability varies with different uses of the test, no single or simple rule can be given as a means of deciding what coefficient indicates sufficient reliability for every purpose. For example, a degree of reliability sufficient for a diagnostic appraisal of status of individuals at the end of each month to be used as a guide in instruction might be too low to serve as a single, final examination on which passing or failing of the term's work would be based. It should be noted also that the reliability of a test depends greatly on how well the tests are given, how well the work of the pupils during the test is sustained, and how accurately the tests are scored. Faulty administration and scoring of tests may reduce the reliability greatly. These facts place a heavy responsibility on the author of tests for making the testing and scoring as objective as possible and for giving full information concerning the uses to which the tests may be put with reasonable expectation of securing reliable results. It places equal responsibility on the examiner to follow the

standardized procedure rigidly. A serious fault in testing, not infrequently found, consists in giving a few extra seconds of time, distracting pupils by comments during the test, giving a child a hint for some reason, or taking liberties with the prescribed directions for scoring items right and wrong. A teacher once told the writer that, in using one of his reading tests, she scored certain exercises correct because "knowing her pupils she felt that certain responses indicated that the pupils understood the material pretty well even when their responses were different from those prescribed as 'correct' in the Manual." Since this was a test of "Following precise directions," these liberties destroyed the validity as well as the reliability of the test.

ECONOMY AND USABILITY

Tests that measure important objectives of education with high validity and reliability may vary greatly in acceptability. Some may be more expensive than others. The cost of the tests and manuals, however, is usually much less important and variable than the cost of giving and scoring the tests. Within recent years, the costs of tests have been reduced and at the same time the quality of paper, illustrations, and mechanical arrangement improved. The development of more objective and expeditious methods of scoring the tests by hand and especially the invention of several types of machines for scoring tests mechanically have greatly reduced costs.¹³ Sometimes tests which rank high in these respects are accompanied by manuals which fail to give satisfactory instructions for interpreting results and for improving instruction in the light of the needs revealed. Sometimes the manual accompanying a good test gives distinctly misleading educational suggestions. Consequently, the manual must be as carefully appraised as the tests themselves. If it is planned to give a test two or more times at intervals to measure growth, only tests with a sufficient number of equivalent forms should be chosen.

EFFECTS OF THE EXPERIENCE UPON THE PUPIL

Most educators and specialists in appraisal recognize the importance of the effects of the test on the pupil before, during, and after the experience. Some forms of appraisal produce more apprehension and nervousness, more tension and fatigue, than others. Some are genuinely enjoyable whereas others may produce outright annoyance. Some are intrinsically of high educational value; they teach as well as test. Some permit later analyses which are more illuminating and helpful than others. Such factors as these deserve careful consideration. The examiner should realize, however, that such effects depend greatly on how the test is given, how the teacher reports the outcomes, and what she says and does about the results.

The test must be applied in the light of the major objective being sought. In diagnosing a reading difficulty, for example, a highly crucial test should not be eliminated merely because it is a little arduous for the pupil. For example, an essential test in reading is observing how a pupil attempts to work out the recognition of unfamiliar words. To apply such a test, the pupil simply must be led forward through a series of words that he fails to solve. Although a skilled examiner tries his best to make the difficult work seem desirable and pleasant, it is not always an especially joyful or, at the moment, notably educative experience. The teacher or educational diagnostician in such cases is justified in following much the same policy as the physician. The physician may find that it is essential to his diagnosis to secure a sample of the contents of a patient's stomach an hour after a test meal. Since there is no better procedure, he expects the patient to swallow the tube of the stomach pump — a procedure which at the time is neither pleasant nor conducive to good digestion. Like the teacher, he is as humane and reassuring as possible, but he acts in the interest of the greatest good in the long run even if his test is not pleasant.

We may summarize the discussion to this point by saying

hat one should have regard for economy and values in purchasing tests as one has for any other commodity. The test should permit easy, quick, and reliable scoring. It should be attractive in format. The procedure for giving and scoring the test should be economical and carefully standardized. Sufficient forms should be available. The test should possess the degree of reliability needed for the purpose in hand. And, above all else, the test should, without any question, provide a sufficiently valid measure of the ability or performance the examiner desires to measure. The school, finally, should be concerned with measuring its most important objectives.

The last statement raises the question. What kinds of abilities and performances can now be measured by standardized tests? This is the topic of the next section.

STANDARDIZED ACHIEVEMENT AND DIAGNOSTIC TESTS

Nature of Standardized Tests. Standardized tests may be divided into two types: (1) Achievement Tests and (2) Diagnostic Tests. The most widely used type of achievement test is designed primarily to measure the status or attainment in a school subject or activity of an individual or class or a larger group. Such tests may be used for any of the purposes outlined on pages 554-5. Achievement tests in the school subjects are more numerous and more widely used than any other kind. In the early period of the testing movement, a single test was often offered as a measure for "general ability" in reading or arithmetic. It is now recognized, however, that several abilities or specialized phases of ability appear in the educational objectives of most subjects. It is therefore necessary to test each ability separately in order to make possible valid educational guidance. The typical present-day policy is to use a "battery" of tests to secure a thorough survey of attainments in the various school subjects and to follow such an appraisal with a more extensive diagnosis of those subjects or pupils who seem to merit more

Nature of Diagnostic Tests. Diagnostic tests consist typically of a series of instruments designed to measure a larger number of abilities, interests, and performances, often including special techniques, skills, and forms of information essential to success in the subject as a whole. Thus in silent reading, in addition to measuring level of comprehension and speed and accuracy of reading paragraphs of one or more types, tests may be included to measure recognition of isolated words, recognition of phrases, range of word knowledge, skill in phonetic and visual analysis of word-forms, recognition of word-form elements such as isolated phonograms (th, gr, etc.), syllables, individual letters, and letter sounds. There is, however, no clear line of division between achievement and diagnostic tests. Some achievement tests are diagnostic to some extent. For example, to measure speed of reading easy passages and the most complex level of comprehension is to diagnose reading to some extent. On the other hand, diagnostic tests usually measure achievement in each of the abilities examined. What one finds is a range from very limited to very extensive diagnosis.

The General Achievement Battery of Tests. The *Modern School Achievement Test* is an example of a survey test. It includes tests for each of the following: (1) Reading: level of comprehension; (2) Reading: speed; (3) Reading: accuracy; (4) Arithmetic: computation; (5) Arithmetic: reasoning; (6) Spelling; (7) Health knowledge; (8) Language usage; (9) History and civics; (10) Geography; (11) Elementary science.

In making the tests, specialists in the various subjects endeavored to select as test items the most important of the commonly taught items of subject matter. The test directions were carefully standardized and given to a representative sampling of pupils throughout the country to secure reliable norms. The raw scores may be converted into age or grade scores, and the relative ability of a pupil on the various tests may be intelligently compared. Thus, by giving the battery,

which is assembled in a single thirty-two-page booklet, an appraisal of general achievement in the basal subjects is secured. The test provides a "profile" sheet on which a pupil's attainments may be graphically displayed. Figure 27 gives a graph for a fifth grade pupil.

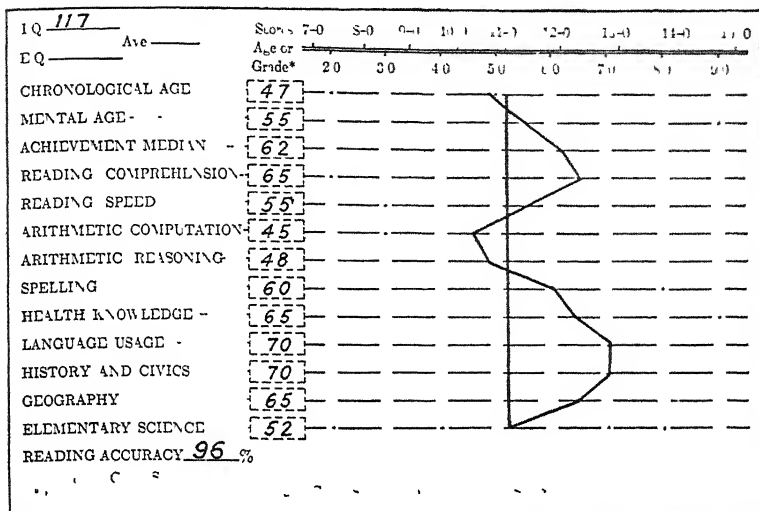


FIG 27. PROFILE CHART FOR THE MODERN SCHOOL ACHIEVEMENT TEST

This profile is worked out in terms of grade scores. The straight vertical line shows the tests were given when the pupil was at grade 52, that is, shortly after the beginning of the fifth grade. The pupil was slightly young for the grade, his chronological age corresponds to a grade of 47, as shown in the first horizontal line both by the entry in the column of boxes and by the graph on the profile. His mental age, however, is 55. His I Q (entered in the top left corner) is 117. The approximate achievement median, that is, a median or average of the grade scores in the various tests, is grade 62, which exceeds his age, his mental age, and his grade position. He is, in general, a good student. His attainments are somewhat uneven, however. He is best in language usage, history and civics, geography, and reading comprehension. He is very good in reading speed and spelling, barely average in science, and below his grade and mental age in arithmetic. Specialization in ability of this degree is not unusual.

Batteries of this type, of which a number are available, measure achievement in the school subjects in a general way. They reveal approximately "how good" a pupil is in reading, arithmetic, etc., in general. It will be noted that only one test is provided in spelling, health knowledge, language usage,

story and civics, and science, two in arithmetic, and three in reading. The age or grade scores do not themselves give specific information about particular difficulties or special attainments within a subject. When more than one test in a particular subject is included some diagnostic insight is made possible, however. For example, the *Modern School Achievement Tests* measure separately Level or Power of Comprehension, Speed, and Accuracy of reading. By comparing grade or age scores for these three phases of reading, the teacher can tell along which line to guide future instruction. In many of the tests comprising such a battery, additional diagnostic information may be secured by studying the nature of the errors made by a pupil. For example, in the spelling test of the *Modern School* battery, directions are given for detecting pupil's difficulties by classifying the errors into certain types such as those due to (1) Addition or omission of syllables; (2) Unphonetic syllables or parts, etc. Since an excess of a given type of error suggests a particular fault in the learning process, the analysis of errors gives the teacher clues for improving his instruction of each pupil.

Methods of Using Achievement Test Batteries. A common practice is to use such a battery once, less often two or more times, during a term, for a general checkup of all pupils in a school system. The superintendent of the system, the principals of the various schools, the supervisors and teachers, get copies of the age or grade scores of all pupils under their jurisdiction. The average attainments of each grade in the whole system, also in each school building and in each class, are computed. The teacher usually receives the test papers of the pupils in his own class, as well as the averages of other classes and schools. Further study of the test papers of his own pupils, discussions with other teachers, etc., are then possible and desirable.

Such uses of the general achievement battery are valuable as far as they go. They do not, however, provide all the information essential for complete appraisal or diagnosis.

Since the battery is limited to attainments in the school subjects, it must be supplemented by appraisals of many other objectives of education. Since such a battery was made for general use, it does not provide a detailed evaluation of all aspects of the school subjects as taught in a particular class. Finally, such a test itself is diagnostic only to a limited degree, and more penetrating analyses of a pupil's specific attainments, difficulties, and interests are usually desirable.

TYPES OF STANDARDIZED TESTS NOW AVAILABLE

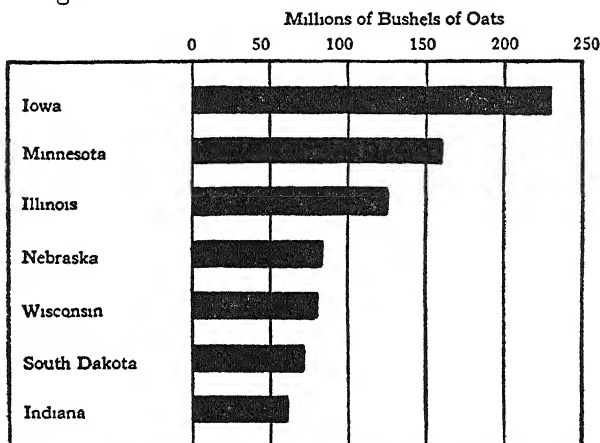
Standardized Tests Are Available in Most School Subjects. To list the subject matter fields in which standardized tests are available would be to list practically all the subjects appearing in the curriculum from the kindergarten to the most advanced graduate school. Although more tests are available in the basal or "tool" subjects such as reading, spelling, and arithmetic, good general appraisal tests have been developed for such subjects as appreciation of music, dress design, and other fields of art as well as for various skills such as ability to read music or judge textiles.

Standardized tests of subject matter have been criticized on the ground that most of them are measures of mere recall of facts, often isolated, unorganized, or even unimportant facts, rather than ability to use facts intelligently, to make critical appraisals of data, or to apply general principles. Standardized tests of such abilities as these, however, are rapidly appearing. A few examples will be given.

Tests of Critical Thinking. The Wrightstone Tests of Critical Thinking in the Social Studies are an example. They include three types of tests: (1) Obtaining facts; (2) Drawing conclusions; and (3) Applying general facts. They are designed for use in the elementary school.¹⁴

Tests of obtaining facts. The test of "obtaining facts" provides a measure of a pupil's ability to obtain information from graphs, maps, and tables of the types used in the social studies; to use the index of a typical social studies book; and to locate

essential information in books, magazines, and newspapers in a typical library setting. It is not a test of facts previously acquired but of abilities used in acquiring new information for particular purposes. It presumably is an index of skill in using the recognized techniques of study. An example is provided in Figure 28.



- 13 The number of bushels of oats grown in Illinois was about
 (1) 125 million (2) 150 million (3) 125 13 ()
- 14 The state which grew the least amount of oats was (1) Indiana
 (2) Nebraska (3) Iowa . 14 ()
15. The state which grew the most oats was (1) South Dakota
 (2) Iowa (3) Minnesota . 15 ()
- 16 The state which grew about 57 million bushels was (1) Nebraska
 (2) Indiana (3) Minnesota 16 ()

FIG. 28. A SAMPLE OF TEST ITEMS FROM THE WRIGHTSTONE TEST OF OBTAINING FACTS

Four problems, Nos 13 to 16 above, are presented in connection with the graph. The total test includes thirty problems which increase in difficulty and an additional exercise concerning the use of an index, etc

Tests of drawing conclusions. The test of "drawing conclusions" requires the pupil to evaluate various conclusions drawn from given data. Inasmuch as all the information is given in the printed material available to the pupil, no recall of facts is required. The pupil's success with the test depends upon how well he comprehends, infers, and judges

from the given social studies data. These data are given in textual, graphic, and tabular form. The following material, presented to the pupil to illustrate the method of doing the tests, is somewhat easier than the eight problems that comprise the test.

Directions. After you read these directions and understand them, you will be told when to begin the test.

- Mark with (+) every statement which is true and can be proved by the facts stated
(0) every statement which might be true but cannot be proved by the facts stated
(-) every statement which is false as shown by the facts stated.

Sample Question. Knights, or nobles, in the Middle Ages got their lands from their fathers. The lands and servants were passed from father to son. The farmers who used land belonging to a noble had to pay so much that they were always poor. The merchants who sold goods had to pay a fee if they used the roads and bridges on a noble's land or if they used a boat in his stream

- A. The nobles who owned the land in the Middle Ages made every farmer and merchant pay a great deal to use the land. A (+)
B. The merchants who sold goods were often rich men. B (0)
C. Merchants and farmers were not under the power of the nobles. C (-)

Explanation. Statement A is a true explanation and can be proved by the facts stated, so it is marked (+)

Statement B might be true but cannot be proved by the facts stated, so it is marked (0)

Statement C is false as shown by the facts stated, so it is marked (-).

Tests of applying facts. The test of "applying general facts" was designed to measure ability to generalize or apply facts to a described social studies situation or event. Following is the illustrative exercise used to show the pupil how to proceed.

Directions: This section has a number of paragraphs. Below each paragraph are two sets of statements about the paragraph. In the

left-hand column are five statements. Three of these statements will help you to understand the three references in the right-hand column. Select a statement from the left-hand column which best explains a reference in the right-hand column. Write the number of the statement in the space after the reference.

Sample Exercise. New York City is one of the largest cities in the world. Rents for houses or apartments are high in all parts of the city. Most of the people living in the part of the city called Harlem are Negroes. Many Germans live in the part called Yorkville, and many Italians live in the part of the city around Mulberry Street. Similarly, in Chicago, Boston, Philadelphia, and Los Angeles people of the same race or nation are likely to live in the same part of the city.

- | | |
|---|---|
| 1. A large city has many kinds of people | 1. Explains the presence of Negroes, Italians, and Germans in New York City (1) |
| 2. Big stores grow up in big cities. | 2. Explains why rents are high in New York City (4) |
| 3. People of the same race or nation stay together in a big city. | 3. Explains why there is a Harlem (3) |
| 4. Rents are high in large cities. | |
| 5. Prices help to decide how much goods will be sold | |

Explanation: In the left-hand column statement 1, which reads "A large city has many kinds of people," explains the statement in the right-hand column "Presence of Negroes, Italians, and Germans in New York City," so 1 is written in the space to show that these two statements belong together.

Statement 2, which reads "Big stores grow up in big cities," does not explain or belong to any reference in the right-hand column, so we go on to statement 3.

Statement 3, which reads "People of the same race or nation stay together in a big city," explains "Why there is a Harlem," so 3 is written in the space to show that these two statements belong together.

Statement 4, which reads "Rents are high in large cities," explains "Why rents are high in New York City," so 4 is written in the space to show that these two statements belong together.

Statement 5, which reads "Prices help to decide how much goods will be sold," does not apply or belong to any part of the paragraph so we are finished with this paragraph.

Several interesting examples of tests of judgment, inference, and reasoning are to be found in the series of instruments developed by the Committee on Appraisal of the Progressive Education Association for use in its "Eight Year Study" of education at the high school and college levels.¹¹

Tests of applying principles Tests of application of principles were developed for various subjects such as science, biology, chemistry, and physics. In each test a problem is presented to the pupil in a printed paragraph. The problem ends in a question of the type "What should be done?" or "Which of the following courses of action should be taken?" Three possible conclusions are given, from which the pupil is to select the one that is most consistent with the facts given and whatever other knowledge he has. Ten to fourteen reasons which might support the chosen conclusion follow. The student is to indicate those that support his conclusion.

The scores may be analyzed to show

1. The general accuracy of a student in making appropriate decisions with valid reasons.
2. The number of correct conclusions drawn.
3. The number of correct reasons selected.
4. The type of incorrect reasons such as: Technically false, irrelevant, false analogy, practice, assuming the conclusion, authority, ridicule, teleology.
5. The number of reasons chosen which are inconsistent with the conclusion chosen.

Tests of interpreting data. In another test of "interpretation of data" the students are given problems from various fields, accompanied by charts and graphs. After each problem are a number of statements which the pupil is to mark to indicate if the data are:

1. Sufficient to make the statement true.
2. Sufficient to indicate that the statement is probably true.
3. Insufficient to indicate the truth or falsity of the data.

4. Sufficient to indicate that the statement is probably false.
5. Sufficient to make the statement false.

Answers are to be based on the evidence alone. The pupil's responses may be analyzed to show his:

1. General accuracy in judging interpretations.
2. General accuracy in one or more of the five types of response.
3. Tendency to err in the direction of understatement.
4. Tendency to "go beyond the data" (call true a statement probably true, etc.).
5. Tendency to make crude errors in judgment (call false a true statement).

Tests of Responses to Controversial Issues. In a test of "analysis of controversial writing," the student is given a problem presented in a passage from a quarter to a half page in length, and is asked to proceed as follows:

1. Read each of a group of twelve statements and indicate whether
 - a. There is evidence that the author wants you to agree with or accept the statement.
 - b. There is evidence that the author wants you to reject the statement.
 - c. There is no evidence as to whether the author wants you to agree or disagree.
2. Read a set of ten statements and indicate whether
 - a. The statement represents a form of argument the author used. (Example: Assumes that —, gives facts in such a way that —, etc.)
 - b. The statement represents a desirable form of argument, whether the author uses it or not.

The purpose of these tests is not only to measure the pupil's ability to "apply principles," "interpret data," "analyze controversial writing," etc., but also to reveal some of the

particular strengths and weaknesses of his methods. In this respect these tests are designed to be *diagnostic*, to some extent, as were some of the newer "preparation" or "readiness" tests described in the preceding chapter. Indeed, as suggested then, a diagnostic appraisal of abilities of all kinds from time to time is essential to full understanding of a pupil's needs.

Tests of Attitudes, Prejudices, and Interests. The standardized test technique has been successfully applied to the appraisal of interests and attitudes as well as to abilities. The Committee of Appraisal of the Progressive Education Association, for example, has developed a very simple test for sizing up the interests of the high-school pupil by presenting him with a list of 200 items each of which he is to mark to indicate whether he likes, dislikes, or is indifferent to it. The list includes such items as:

1. To write stories.
6. To correspond in a foreign language with a student in another country.
32. To play basketball
39. To set an attractive table for guests.

Attitudes and prejudices are doubtless well revealed by the Progressive Association Tests of "Social Problems."¹⁶ Following is a typical problem from this test.

Problem V. "Unemployment"

Mr. Wilson works in an auto factory which employs several thousand men. When he has steady work he earns enough to support his family. But each year during slack seasons Wilson and many of the other workers in the plant are laid off. Since they do not earn enough to save for these periods of unemployment, they often have a very difficult time.

Many solutions to this problem have been suggested. Which of the following seems best to you?

Directions. Choose the course (or courses) of action and fill in the appropriate spaces on the answer sheet under Problem V.

Courses of Action:

- A. The government should provide unemployment insurance or relief for workers during periods of unemployment.
- B. The automobile industry should plan its production so that the available work is spread more evenly among all its employees throughout the year
- C. These men should find ways of taking care of themselves and their families during slack seasons

Directions: Choose the reasons which you would use for your course (or courses) of action and fill the spaces on the answer sheet in the column under the course of action you marked at the top. If you have chosen more than one course of action, and a reason supports both, mark it in both columns.

Reasons:

- 1. Society cannot afford the waste of human resources resulting from economic insecurity.
- 2. Each person in a democracy is entitled to some security of employment.
- 3. The general public should not be asked to support workers during slack seasons in industry.
- 4. One of the primary responsibilities of government in a democracy is to provide for the welfare of its people.
- 5. It is an American tradition that every self-respecting person should take care of himself.
- 6. Those who profit from men's labor should bear some responsibility for providing them with an assured means of livelihood.

Thirteen additional "reasons" are included in the list for this problem. The total test consists of eight social and economic problems. Instructions issued with the test provide a method of classifying the student's attitudes toward such issues.

Tests of "fairmindedness." This type of test and several others were studied prior to 1925 by Goodwin B. Watson and reported in his monograph on "The Measurement of Fair-mindedness."¹⁷ From this series of more than a dozen tests, dealing with attitudes toward social, economic, religious, racial and other issues, we shall offer samples of two other devices.

One device is the "cross-out test" in which a list of words is given. The subject is instructed to cross out the words which suggest situations that are to him more "disagreeable" than "agreeable." The list contains such words as capitalist, Ku Klux Klan, landlord, etc. Another device consists in offering a list of statements which the subject is to read and rate as regards the extent to which it expresses the truth. The statement is to be marked + 2 if it is utterly and unqualifiedly true, + 1 if it is true in large degree, 0 if it is an unchecked, open question; - 1 if it is probably or largely false, and - 2 if it is utterly and unqualifiedly false. Sample statements are

+ 2 + 1 0 - 1 - 2 The churches are more sympathetic with capital than labor.

+ 2 + 1 0 - 1 - 2 Unless industrial and economic conditions in the United States are remedied by sweeping changes in the present capitalistic system, we shall have a class revolution.

Watson's studies of his tests indicate that the reliability and validity — which was appraised in several ways — are about as high as those secured by first-class tests of achievement in the school subjects. These and other studies indicate that attitudes and interests may be determined quite accurately by standardized pencil-and-paper tests.

Standardized Tests of Personality Traits. The standardized test technique has been employed with some success in the appraisal of various areas of personality. Such tests may be used to size up individuals at any time and to appraise the effects of school and other experiences employed to secure improvement. The appraisal of the personality will be considered in Ch. XVII.

Merits and Defects of Standardized Tests. Standardized tests have certain obvious merits — convenience, ease in scoring, the provision of the "norms" for use in interpreting results, the possibility of comparing individuals and groups with each other, the value of knowing the reliability of the score, the high validity which may be secured by thorough

study of the test before publication, and the values of enjoying the results of the experiences of other persons who have used the same test. The criticism that standardized tests too often measure trivial details or facts is a criticism of test makers rather than tests. New ventures have shown the applicability of the standardized test technique to a wide range of educational outcomes. Standardized tests, however, can usually not be secured to measure every aspect of every teacher's program. It is, therefore, necessary for a teacher to supplement the published, standardized test with instruments designed to appraise abilities not measured by them at present and to meet local and special needs in the same fields now covered by them only in a general way. One of the methods of fulfilling this purpose is to construct "informal" or "teacher-made" tests similar in design to the standardized instruments.

TEACHER-MADE OBJECTIVE TESTS

Comparison of Teacher-Made and Standardized Tests.

The teacher can embody the content in which he wishes to examine his pupils in practically all the types of tests employed in standardized instruments. Commonly used forms such as the true-false or yes-no tests; the multiple-choice test; the matching test; the single word answer, and various problems tests have been illustrated in preceding pages. Extensive research by specialists has made available many particular rules to be followed to secure the best results from each of many types of tests in the construction of teacher-made as well as standardized tests. Indeed, it should be realized that the construction of home-made tests should be guided by the same principles as the development of standardized tests and is subject to the same difficulties

Requirements of the Teacher-Made Tests. Home-made tests, consequently, should measure the outcomes regarded as most important; that is, they should harmonize with the teacher's philosophy of education. They should also be based upon the type of mental processes regarded as important.

For example, if the teacher wishes the test to bring into action certain types of thinking or generalizing, he should be sure the test is not merely a measure of memory for detailed facts or of recall of certain general statements. In other words, tests should contain only items of high validity. In constructing informal tests, the items may be tried out by interviews with pupils to suggest ambiguities and other weaknesses that reduce validity. A teacher-made test, moreover, should have the reliability essential for its purpose. If a teacher is to avoid deceiving himself and misleading his pupils, he must be as careful about the reliability of tests of his own construction as of tests he purchases. The reliability of published tests of similar character to the ones he is developing may be studied for suggestions concerning the number of items likely to be needed to attain a desired degree of reliability. The teacher should understand, however, that the quality is far more important than the number of the items. In many instances he should be prepared to determine the reliability of his tests or to secure the services of someone who can do it for him. Some of the extreme critics of standardized tests in advising teachers to give them up and make up their own tests are leading teachers to practices which embody most of the faults of the most defective published tests and which leave the teacher no guidance concerning ways to avoid them. For this reason, certain suggestions obtained from the numerous studies of test items and test types commonly used in teacher-made tests will be offered in the next chapter.

Since many important objectives of education cannot at present be satisfactorily appraised by standardized tests or informal tests patterned after them, other methods of appraisal must be enlisted in the service of the schools. The uses and limitations of essay examinations, observations of performances, questionnaires, ratings, anecdotal records, and other devices will therefore also be considered in the next chapter, at the close of which summary of the main points in the two chapters will be given.

QUESTIONS AND EXERCISES

1. From your own experience as a teacher, or a student, or both, give evidence of the unreliability of the grading of examination papers. If possible cite the various factors which influence the examiner's judgment.
2. What are the differences between an ordinary examination such as an essay examination and a standardized test? Is a standardized test always an objective test? What features of a typical standardized test, if any, are subjective?
3. How would you plan an objective test for this chapter? Outline the various steps you would take and the various things you would do. It would be an interesting exercise for all of the students in the class to make up and compare an objective test of, say, thirty items for this chapter. How would you proceed to find out which of these various tests had the highest reliability and the greatest validity?
4. What precisely is the difference between validity and reliability?
5. To what extent is the scoring of a "simple-recall test" subjective? How could the scoring procedure be made more objective?
6. What is the difference between an accuracy test and a quality test?
7. What are some of the difficulties in making an interpretation on the basis of tests which measure to some degree several factors such as speed, level of difficulty, and accuracy? In such a mixed test is it possible that the instrument may measure each of these features to a different degree for different persons? For example, a combination speed and level of difficulty of reading test might be more fully a measure of speed in the case of a slow reader than in the case of a fast reader. Give other possibilities.
8. How would you construct an age score for speed of running the 100-yard dash?
9. Summarize the reasons for having a very clear conception of the objectives of teaching before a program of testing is developed.
10. Give instances in which failure to follow directions for giving a test exactly may result in unreliable and invalid results.
11. Give from your own experience, if possible, instances in which the type of examination employed in a course has affected the methods employed by yourself as a student. Give other instances which you have observed or heard about or which you can imagine.
12. For a course in Educational Psychology what types of examinations do you think would be best? Why?

- 13 What are some of the important outcomes of education at the elementary or high school level which are not measured by such a survey test as the Modern School Achievement Test which was described in the text?
14. What are the main merits and defects of tests such as the Wright-stone Tests of Critical Thinking in the Social Studies?
15. What, strictly speaking, is the difference between a teacher-made objective test and a standardized objective test?
- 16 Summarize the main criticisms to be made of a school which relies entirely upon standardized objective tests for measuring achievement. Also summarize the main criticisms of a school which employs only teacher-made objective tests.
- 17 What important purposes do norms or scores derived from norms serve in testing? What are the major ill effects of assuming that each pupil in a particular grade, say, the fourth grade, should be expected to equal the fourth grade norms?

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CHAPTER XVII

Other Methods of Appraisal

In the preceding chapter, various criteria to apply to any kind of test were discussed. It was found that a test should measure an important outcome of education, and this required that a test must be evaluated in the light of recognized educational objectives. It was stated that a test must have a degree of validity and reliability sufficient to fulfill the specific purpose for which the test is to be used. To be satisfactory, a test must be as economical as possible in total cost, including especially the cost of scoring the papers and computing the scores. These and other requirements of the standardized tests apply quite as fully to teacher-made objective tests, essay examinations, observations, and other forms of appraisal to be considered in this chapter. We shall begin with a discussion of certain further features of constructing and using teacher-made objective tests. Most of the suggestions to be offered are really detailed ways and means of satisfying the general criteria of educational importance, validity, and reliability previously discussed.

THE CONSTRUCTION OF TEACHER-MADE OBJECTIVE TESTS

The following discussion will be restricted mainly to the development of teacher-made tests for appraising attainments in typical courses of study such as history, social studies, and chemistry.

Determining the Educational Objectives. Tyler summarizes his own widely respected recommendations as follows:

"It is usually necessary to consider first the major functions or purposes of the course, breaking those up into several more specific objectives. To make this list of major objectives more nearly complete, the content of the course is then examined, topic by topic, to discover — the things which students are expected to gain from studying the topic. This examination of individual topics usually suggests additions to the list of major objectives. The purpose of these steps is to obtain a relatively complete list of the most important objectives. After the list has been formulated, an analysis is then made of each objective to give it definite meaning by defining it in terms of the behavior expected of students, and to obtain a comprehensive statement of the specific elements involved in the objective. This analysis provides the basic material from which a complete program of examinations may be constructed." ¹ As an illustration, Tyler offers the following.

In a foreign language course, for example, the objectives might include the ability to comprehend the meaning of selections written in the foreign language; the ability to understand oral expression in the foreign language; the ability to pronounce orally words, sentences, and paragraphs in the foreign language; the ability to compose effective written expression in the foreign language; the ability to compose effective oral expression in the foreign language; knowledge of grammar of the foreign language; and understanding of the important vocabulary in the foreign language; a knowledge of the art, literature, and customs of the people whose language is being studied.

Further analysis is necessary in order to make this list of objectives usable in building examinations. For example, the first objective might be analyzed as follows: the nature of the reading ability should be defined, and a collection should be made of selections written in the foreign language which are new to the students and which they should be able to comprehend. This collection would serve to define the kinds of reading material to be covered in the examinations in terms of narratives, expositions, descriptions, and the like. In making the collection, care should be exercised to have an appropriate vocabulary included and to obtain selections involving ideas of the appropriate difficulty for the class. By analyzing each of these objectives of the foreign language course in a similar manner the

basic materials are obtained from which examinations can easily be made. It is readily apparent that the procedures of formulating and analyzing the major objectives are desirable for any course and are invaluable when making a comprehensive program of examinations.

Selecting and Grouping Items for the Test. When these concrete data are in hand, the teacher should select the most important ones as items for a test. This step is usually necessary inasmuch as it is rarely possible or advisable to attempt to cover every item. Testing must be based upon a sampling of the whole field to be covered.

The teacher will usually need next to decide how to group the items to achieve the best results. For example, it may be more diagnostic to group in one test the items which measure recognition of words, in another those which test ability to comprehend paragraphs, and in another those which involve critical evaluation of literary materials.

The next step is to develop a series of test items, each valid for the purpose it is to serve.

Preparing the Items for a Test. The most important step in preparing the items is to discover the kind of mental reaction the pupil will make to it. The crucial question is not what data are in the test item but what mental response the pupil makes to the problem. This depends not only on the data but also upon the form of the exercise. For example, the teacher's purpose to test the pupil's understanding of an important concept may be thwarted if he includes in the item the exact phrasing of the text. The pupil may, for reasons pointed out in Chapter XVI, get the right answer by merely recognizing the words even when they are not understood.

Following are a few practical suggestions which have been derived from studies of test items.

The item should be as clear and direct as possible. Complex, lengthy, involved statements may obscure the real issue. The point of the problem must be clear to the pupils.

Irrelevant clues to the correct answer should be avoided. For example, note the following test:

An adjective is a part of —
 ship speech automobile book

This item can be figured out by means of several irrelevant clues. For one thing, *speech* is the only word that makes a complete sentence without using *a* or *an*. The omission of the article gives the test away. Even if the choices are made *a ship, speech, an automobile, a book*, the vaguest recollection that *adjective* has something to do with the English class is sufficient clue to solve the test item.

Students learn to spot recurring clues in objective tests. For example, true-false test items containing the word *always* or *never* are more often wrong than right; those containing *often*, *sometimes*, etc. are more often right than wrong. *Double negatives* are likely to result from desperate efforts to develop false statements. All such clues should therefore be avoided.

Selecting the Type of Exercise Best Suited to the Situation. Many studies have been conducted to determine which of the commonly used types of items, multiple-choice, completion, etc., are best in general. The evidence is that there are, on the whole, no important differences in general merit.² Some persons, apparently, are more adept in developing good items of some types than others. Each type is susceptible to certain misuses more than others, and each seems to be more adaptable to certain purposes than others. Special texts on the development of teacher-made tests consequently give detailed statements of the major uses and limitations, and a list of special rules and suggestions for the construction of each type.

Suggestions for Developing Multiple-Choice Exercises. The following suggestions from a text by Ross concerning the multiple-choice exercise is an excellent example: ³

Possibilities and limitations. The multiple-choice type of item is usually regarded as the most valuable and most generally applicable of all test forms. Lee regards it as "one of the best means for testing

judgment that is available." Lindquist asserts that it is "definitely superior to other types" for measuring such educational objectives as "inferential reasoning, reasoned understanding, or sound judgment and discrimination on the part of the pupil."

Unusual care must be exercised in the construction of multiple-choice tests, however, in order to avoid the inclusion of irrelevant or superficial clues, and in order to insure that the tests measure something more than the memory of factual knowledge

Rules and Suggestions for Construction

1. Suggestions for avoiding irrelevant clues to the correct response.
 - a. Use unfamiliar phrasing rather than the familiar language of the textbook
 - b. Make all optional responses grammatically consistent. For example, if the verb is singular, avoid plural responses, and conversely. Avoid using "a" or "an" as the word in the incomplete statement immediately before the list of responses.
 - c. Avoid making the best response consistently longer or consistently shorter than the others
 - d. Avoid using in the best response the same words or phrases that occur in the question or incomplete statement.
 - e. Use direct questions rather than incomplete statements; by so doing you make irrelevant clues less likely.
 - f. Arrange the items so that the correct responses occur in random order rather than according to a definite pattern.
2. Suggestions for encouraging responses on a high intellectual level
 - a. The guessing factor can be reduced by providing four or more responses to each item. Horst has found, however, that when the incorrect responses are of equal difficulty, the chance element is less than when the choice is among a greater number of responses with a wider range of difficulty.
 - b. Make all responses plausible. The aim should be to make each response so plausible that it will be selected by some individuals who have only superficial knowledge of the point involved. The plausibility of incorrect responses may be increased by using familiar or stereotyped phrasing very similar to those appearing in the question or incomplete statement. Kelley found that the judgment of the test maker

in selecting the optional responses is approximately as valid in vocabulary tests as is the laborious task sometimes suggested of securing the incorrect responses by tabulating the responses from recall tests

- c. In general, avoid the use of the "simple-recall" type of item where the simple-recall type is adequate. Examples would be those with only one or two responses that are at all plausible, or those whose correct response is so short that no more time is required to write it than to copy the code number of the multiple-choice form
- d. In phrasing multiple-choice test items, consideration should be given to the fact that the answer may be arrived at by eliminating the incorrect responses as well as by selecting the correct response directly. Requiring the pupil to select the *least* satisfactory response in the series given, or the one that is *not* true, will often compel a careful comparison of all the possible responses
- e. In testing for the understanding of a term or concept, the term should usually be presented first and followed by a series of definitions or descriptions from which the choice is to be made. If the order is reversed, so that from a series of terms the choice is made of the one that best fits the definition or descriptive statement, the selection frequently can be made upon superficial verbal associations rather than genuine understanding.
- f. To measure the higher levels of understanding, increase the homogeneity of the options provided. The following illustration from Lindquist shows how the degree of discrimination required increases with the homogeneity of the responses presented:
 - A. Engel's law deals with
 1. the coinage of money
 2. the inevitableness of socialism
 3. diminishing returns
 4. marginal utility
 5. family expenditures
 - B. Engel's law deals with family expenditures for
 1. luxuries
 2. food
 3. clothing
 4. rest
 5. necessities

- C According to Engel's law, family expenditures for food
1. increase in accordance with the size of the family
 2. decrease as income increases
 3. require a smaller percentage of an increasing income
 4. rise in proportion to income
 5. vary with the tastes of families

To respond correctly to *A*, all that is required is the knowledge that Engel's law deals with family expenditures. In *B* a knowledge of the specific item of expenditure is necessary. The maximum degree of discrimination, however, is required in *C*, where still more information is given.

Special textbooks on the construction of teacher-made tests include similar suggestions for each of the various types of tests. A teacher's examinations may be greatly improved and, in the long run, his time and energy conserved by following the principles advocated by specialists for the choice and construction of each type of item. Even when these principles are followed, much depends upon the individual teacher's ingenuity and critical sense. There are, however, various tests which may be applied to distinguish the poor from the good items. By using such checks, the teacher can learn to make better tests in less time than would be possible if he continues on his way uncritically. Some of these techniques will now be considered.

Assembling and Editing the Tests. After the individual items are prepared the test is assembled and studied as a whole. Following are a few of the important principles to observe.

Test items of similar kind should be grouped together. If the test is to measure several types of response such as familiarity with general concepts or ability to apply concepts, the items for each purpose should be grouped together. If, in any one test, different types of test exercises — multiple-choice, matching, etc — are used, it is better to group them than to have them mixed.

Duplicate items should be eliminated. It is better to cover a wider range than to pile up essentially similar problems on fewer points.

The difficulty of the items should be studied. In a test of achievement in a content subject, the items will usually vary in difficulty. To measure a typical class, it is necessary to have a range of difficulty from items which one or two per cent of the group will fail to items which only five or ten per cent will fail. It is advisable to arrange the items at least roughly from the easiest to the most difficult. The optimum difficulty for the test as a whole is one which yields an average score of about fifty per cent correct.

The assembled test should be compared with the nature or list of objectives to see whether all important areas are sampled without undue piling up in some of them. Usually, the distribution of the items should correspond at least roughly to the emphasis given to the various areas in instruction.

Precise directions for giving and scoring the tests should be prepared. Great importance should be attached to the clearness and definiteness of the directions. The time to allow for the test may be estimated. It may be extended (or shortened) when the test is given if a liberal period is provided. The scoring key should be prepared and rechecked. If possible, the teacher should have another person take the test to check the scoring key. With very few exceptions the most simple and satisfactory method of scoring is merely to compute the total number of *items right*, except perhaps in the alternative-choice type of exercise. Even in this type of exercise — in which a pupil will get approximately half the items right by “guessing,” scores which make allowances for chance successes — such as the rights-minus-wrongs method — add but little to the usefulness of the results, and test specialists are not agreed on whether the more time-consuming — and error-producing — procedure is worth the time it takes.

Evaluating the Test. It is apparent that most of the preceding steps are subjective; the test maker is exercising his own judgment with little objective testing of his test. If a test is designed to be used only once, it is possible to apply certain checks after it has been given to the group, as follows:

The distribution of scores and the average or median score of the class should be noted. The best average score, as stated above, is about fifty per cent correct. The poorest pupils should get very low scores but not zero scores; the best should get most but not all the exercises correct.

The items which disagree with the trend should be noted. The scores on the individual items may be determined and those in which a number of the pupils with the lowest total score equal, nearly equal, or exceed the pupils with the highest total scores, and *vice versa*, noted. Usually the test is improved by eliminating these items which are inconsistent with the test as a whole.

Comments of pupils who took the test should be secured. By encouraging the pupils to express themselves freely about the items, one may uncover many unanticipated weaknesses and defects. A teacher should promptly eliminate items which prove to be ambiguous or otherwise defective. The evaluation of test items by the pupils is often a very valuable experience for them. It improves their attitude toward tests; children appreciate fairness and reasonableness in a test as in any other situation.

In some cases results of the test should be compared with other criteria. When a test is prepared with the expectation that it will be used again on other classes, a higher degree of validity and a more adequate degree of validity may be secured by using some of the devices employed in evaluating standardized tests. For example, the scores of the pupils in the test may be correlated with outside criteria such as the results of another test or the teacher's rating. Similarly the reliability may be estimated by correlating the even items with the odd (see pages 565-6).

In general, then, the teacher-made test should be developed by means of the principles revealed by research to be the best guides in the construction of standardized tests. The teacher-made test escapes none of the technical difficulties encountered by the test specialist. The teacher who fails to observe the

best practices may expect his tests to be even more faulty in most respects than the standardized tests. The main advantage of home-made tests is that they may be developed to fit local needs more exactly than ready-made commercial tests. They can be developed to test the particular objectives which the teacher is himself trying to attain. If they do this successfully, they are more diagnostic than any standardized test is likely to be.

There can be no doubt, however, that many objectives in education cannot now be appraised by pencil-and-paper tests, informal or standardized, as well as by other means. We must therefore consider other techniques.

THE ESSAY EXAMINATION

In the preceding chapter, the unreliability of the conventional essay examination was pointed out. Studies of various types of essay examinations, however, have revealed several of their weaknesses which may be avoided and several good features which may be featured.

Values and Limitations of the Essay Examination. The essay examination compares unfavorably with the various new-type objective tests as a means of surveying mastery of facts in a field. In a given period of time most essay examinations cover only about a quarter as many items of information as objective tests.⁴ The older type of essay examination, moreover, usually tested mere recall of facts. Even when the examination included a larger number of items and students were directed to make their answers as brief as possible, it proved to be inferior to the new-type tests.

The chief value of the essay examination lies in its use as a basis of appraisal of skill in summarizing, outlining, organizing, evaluating, or applying information rather than in recalling facts. It is, however, rarely as useful a device as the multiple-choice for testing ability to make sharply pointed interpretations or applications to a particular situation. This is largely due to the fact that fewer situations can be presented,

since it takes far more time to write a discussion than to indicate a choice by making a simple mark. But when ability to marshal data in the form of a summary or outline, or to create a defense of a position, or to organize arguments or develop a new application or compare alternative views or evaluate a proposition, is the skill one wishes to measure, the written composition type of response is the most direct and valid test. It is, in certain cases, such as English composition, the only test. When used as a test for such abilities the essay has instructional as well as diagnostic and appraisal value, provided, of course, that the teacher's grading is valid.

To make the essay examination of greatest value, three requirements should be met. first, the examination should be used as a means of teaching as well as testing; second, the grading of the test must be valid; and third, the grading must be intelligible to the pupil. The first requirement depends in large measure on the second and third.

Faults in Grading Essay Examinations. Certain faults in grading may be eliminated. One fault consists in giving weight, intentionally or unintentionally, to irrelevant factors. If the examination is designed to test legibility of handwriting, or accuracy of spelling and punctuation, these factors should be taken into account in grading the paper, but if the purpose is to evaluate the quality of the thinking on an issue in the social studies, such factors are largely irrelevant. If the teacher desires, he may point out such errors but he should disregard them in arriving at a grade.

The teacher may reduce the influence of certain other factors which affect appraisals unfavorably. Stalmaker found, for example, that the rating given a paper depends considerably on contrast with the examination read immediately before. "A *C* paper may be graded *B* if it is read after an illiterate theme, but if it follows an *A+* paper . . . it seems to be of *D* calibre."⁵ Standards, moreover, are likely to shift from time to time, hence it is undesirable to read a fraction of the papers at intervals. Judgment is likely to be affected

unfavorably by knowing the author of an examination owing to the subtle influence of one's impression of his general competence. Unreliability is increased by considering each person's total examination at a time rather than grading one question for all the pupils in sequence. Errors are increased by attempting to grade the papers too finely, as, for example, into ten or more steps. Optional steps to increase the difficulty of grading by requiring a comparison of different areas and issues.⁶ Finally, grades based on one reading are less reliable than ratings based on a first reading and a review.

Methods of Improving the Grading of Essay Examinations. The validity and reliability of grading essay examinations will be increased by adopting such steps as the following:

1. Have each pupil write his name in an inconspicuous place on the paper, or use a code system to avoid easy identification.
2. Read the responses of all pupils to one question without interruption.
3. Place the papers in about five piles representing levels of merit. In a typical class there should be about ten per cent in the highest and lowest pile; about twenty per cent in the next to the best and next to the poorest; and about forty per cent in the middle or average group.
4. Reread the answers to these questions and shift those papers which seem to be out of place.
5. Record the position of each pupil's paper, using five for the top position, four for the next, etc.
6. Repeat steps (2) to (5) for each question.
7. Add the scores for the several questions to secure the total score.

Using Essay Examinations to Foster Learning. When essay examinations are validly and reliably graded, they can be used effectively to help pupils improve their skill in writing summaries, outlines, evaluations, arguments, and other types of compositions. The teacher should therefore attempt to

reveal to the pupils the important defects and merits of their papers. If this is effectively done, the student's method of study should improve. Students are adept at learning to study in a manner that yields the best results on examinations. For this reason the character of the examination and the teacher's appraisal of it are of marked educational importance. Skillfully employed, the essay examination may be made a useful teaching device.

By no means all the data useful in appraising attainments in schoolwork and especially in diagnosing special difficulties are revealed by standardized or teacher-made objective tests or by these combined with essay examinations. We shall therefore consider other devices.

ANALYSIS OF ERRORS

In discussing informal and standardized tests, it was pointed out that study of the child's responses often enables a teacher to note the number and type of errors made. In certain areas, more thorough study of errors is desirable as a means of securing clues concerning misunderstandings, prejudices, inappropriate techniques, and other defects in procedure.

Value of Norms. In some instances, it is important to note the extent as well as the kind of error. For example, first grade teachers are concerned about the "reversal error" made by children in the initial stages of reading. This error, which a child reveals by mistaking the printed word "saw" for "was," or "on" for "no," "won" for "now," etc., suggests failure of the pupil to follow the rule that words must always be observed from left to right and never in the reverse direction. However, occasional errors of this type are made by most persons, even adults, and the less experienced and able the reader, the more slips of this sort he will make. For diagnostic purposes, it is, therefore, advisable to know how pronounced the tendency is. This may be gauged by standardizing a test situation and the responses to it. Thus, for some of the *Gates Diagnostic Tests in Reading* which contain a

number of reversible words, norms or standards for reversal errors were developed. For one test, the *Oral Context Test*, for example, the examiner notes the total number of words mispronounced and the number of reversal mispronunciations. For the child who makes twenty-six : the average number of reversals is three. Three or fewer errors is "normal"; four or five is slightly large, and six or more suggests the need for definite attention.⁷

Examples of Areas for Error Analysis. The study of errors in speech, composition, spelling, arithmetic, and many other activities has been pursued sufficiently to provide valuable assistance to the teacher. The reports or manuals dealing with analysis of errors often call attention to types of errors that might otherwise not be observed and give standards whereby their significance can be judged as well as helpful suggestions for replacing the inappropriate techniques by better ones. Since recent investigations have shown that many of the most serious "disabilities" are the results of permitting unnoticed errors to become habitual, the discovery of errors at the time when they can be nipped in the bud becomes an important part of the program of appraisal in education.

OBSERVATION OF ACTIVITIES

Observation of Activities Involved in School Subjects. Many forms of educational attainments reveal themselves in some form of *activity* or performance. For some activities the best appraisal is a description of the activity itself. For example, in addition to having a record of the speed of reading, it may be important to know what kind of movements the eyes make during the reading. There are several ways now available for observing eye movements in reading. One is to secure a continuous photograph of a ray of light reflected from the surface of the eye while the child reads a few lines. This record shows the number of times the eye jumped and stopped per line, how much time (in hundredths of a second)

was spent at each stop and each jump, how well the eyes were coordinated in their movements, and other facts of importance. When such an instrument is not available, it is possible to observe certain features of the movements by looking directly into the reader's eyes, over the top of the page being read. In this case, the number of stops can be noted, but the duration of each cannot be determined. Only gross breaks in eye coordination can be observed. Nevertheless, one can learn to note important aspects of an activity as subtle as the eye movements in reading. The qualities of oral reading, singing, discussion, etc., are examples of characteristics which should be observed. In these cases, the pupil may be observed directly, and his voice may be recorded for further study. In either case, especially the latter, ability to observe effectively may be increased by comparing notes with other persons who observe the same performance, especially if one (or more) is an expert. A teacher's ability to observe the important aspects of an activity, and to evaluate them will improve, like a physician's diagnosis, with experience. The ability to see much and see it clearly in children's activities is an important phase of the art of teaching for which no objective pencil-and-paper test can be substituted.

Coded Observations of Behavior. Observations of many other types of behavior are indispensable. For example, appraisals of various types of intellectual and social behavior may be secured by the recording of "coded observations," a term used by Jersild, Thorndike, and others in a study designed to evaluate certain types of activity found in classes following both the conventional and the "activity" program in New York City schools.⁸ First, they selected certain instances of behavior to look for under each of several categories such as (A) Cooperative Activities; (B) Critical Activities; (C) Experimental Activities; (D) Leadership Activities; (E) Recitational Activities; (F) Self-initiated Activities; and (G) Work-spirit Activities. Under "A. Cooperative Activities" were included such items as (1) Helping

other pupils or the teacher with their : : : or projects; (2) Offering objects (books, pencils, chair, etc.) to teacher, pupil, visitors, etc. Several observers were then trained to observe the particular items of behavior included in the list and mark quickly on a record sheet the : : : code number. The reliability of the observation was indicated by the degree of agreement among the judges during a series of trial half-hour periods of observation. Although it was difficult to secure reliable appraisals of several children at once and some types of behavior were more difficult to observe reliably than others, it was nevertheless possible to obtain quite reliable appraisals of many forms of behavior which education seeks to improve when the examiners observed one child at a time. Reliable appraisals were obtained, in fact, in the case of certain types of behavior that pessimistic persons have dubbed the "intangibles."

Reliability of Observations of Behavior. Within fairly recent years, a number of experiments on observation of behavior have shown that certain methods yield results possessing very satisfactory validity and reliability.⁹ Symonds, in a review of various methods, states, in fact, that observers well trained in the best techniques demonstrate reliability which compares favorably with the consistency of good standardized tests.¹⁰ A high degree of reliability, however, is to be secured only by those who possess aptitude for observing, who have adopted a sound procedure, and who have had considerable practice.

Methods of Increasing Validity and Reliability of Observations. The first requirement for effective observation is a perfectly clear conception of what is to be observed. A vague notion of "cooperation" or "self-initiative" must be replaced by an exact definition quite as, in getting ready to develop a test, a vague notion of achievement in history must be replaced by a definition of tangible objectives. Similarly, as the test maker must list the items of behavior that comprise ability in history, so must the observer enumerate the instances

of conduct that comprise "cooperativeness" or "initiative," as was done in the Jersild, Thorndike study reported above. Next, the observer must learn to spot these symptomatic instances of behavior and not to confuse or combine with them other types of behavior. One of the faults of the untrained observer is that of recording a confused array of indiscriminated items, many of which are irrelevant to the major purpose. Next, a definite series of situations giving a fair sampling of different enterprises and definite periods of time must be selected for the observations.¹¹ In general, a series of observations for relatively brief, but definite, periods, over a space of time, in a variety of situations, gives better results than observations confined to a few long periods. This is similar to the fact that an achievement test consisting of many, short, pointed items is superior to one comprising a few, time-consuming responses. In the case of observing certain complex forms of behavior, however, care must be exercised to secure a full expression of behavior and not a mere fragment of it. In such instances, a number of periods, each sufficiently long to allow the behavior to develop and secure full play, must be provided. Finally, some simple means of converting the observations into a score or simple expression must be secured. This point will be discussed later in connection with ratings and rating scales.

Observations may be made either in typical classroom, playground, library, or other school situations or in specially arranged settings. For example, a special room may be equipped to use in observing a child when he is introduced to a group of unfamiliar children and left with them for a time or when he is left alone for a time with an array of selected materials or apparatus, etc. In such cases, the activities of different children can be compared. Situations of this controlled type resemble the standardized test, which is merely a standardized situation to which a pupil's response may be observed, and norms of a statistical type can be developed.

The Anecdotal Record Technique. Another form of observation coming into increasing use is the anecdotal record technique. It consists in noting certain types of significant acts, statements, or expressions of children which appear during the day. In this case, the situation is familiar although it may vary from day to day. These variations can be reduced by keeping records of the anecdotes for a number of days. Even when the procedure is merely to note a dozen or thereabouts of the most significant occurrences daily, the data accumulated over a period of a few weeks give significant indication of children's behavior. When longer periods of time are covered, they throw much light on a child's development.¹²

RECORDS OF ACHIEVEMENTS

Many of the so-called intangible interests, attitudes, and abilities may also be appraised fairly reliably by keeping a record of things actually done by a child. Interests and attitudes tend to express themselves in action. Other things being equal, the child who reads the most books on history has, for practical purposes, the keenest interest in history and, in a certain sense, the most positive attitude toward this subject. A record of books read is thus a useful appraisal of interest. A record of the activities of children over a period of time, properly classified, is extremely revealing. Diary records, even brief ones, prepared by the pupil concerning his activities in out-of-school hours for a number of days enable the intelligent teacher to gauge many phases of development which she could not accurately test in the ordinary way. Records accumulated over a period of years will form a priceless outline which an expert, such as the trained clinical psychologist, can usually round out into a full and significant picture of personality development. Intelligent teachers use such material to secure a depth of insight into the interests, habits, and peculiarities of his pupils which should enable him to make his teaching more fruitful than it would otherwise be.

QUESTIONNAIRES AND SELF-INVENTORIES

Questionnaires and "self-inventories" constructed to reveal significant aspects of interests, attitudes, and abilities are finding a justifiably increasing use in schools. The use of such devices for appraising personality will be discussed in a later chapter. They may be employed for investigation of various outcomes of classroom instruction. For example, the Wrenn Study Inventory¹³ provides a survey of many of the important techniques employed in studying at the high school level. Another example is the McCall-Herring Comprehensive Achievement Tests¹⁴ for the elementary school which include along with tests, a number of questionnaires and self-inventory items in many areas both within and apart from the usual school subjects such as Health and Play, Buying and Using Things, Handling Disagreements, Telling the Truth, and Manners. Another example of the self-inventory is Thurstone's "Scale of Attitudes toward the Movies."¹⁵ One form consists of a list of forty statements, such as

- 3 The movies are the best civilizing device ever developed
- 7 I think the movies are fairly interesting
- 8. The movies to me are just a way of killing time
- 15 It is a sin to go to the movies

In using the Thurstone scale the subject marks the statements which he feels most accurately describe his attitude. Typically he marks several items each of which has been given a weighting on the basis of previous study. The examiner thus secures a figure which suggests the attitude of the pupil in comparison with others as well as the series of statements which describe his attitude. This type of device may be employed informally by teachers to throw some light on the attitude of their pupils toward many things of interest — a particular book they have read or the free reading period in general, the recreation program, the committee system adopted in the class, lecture versus laboratory periods, political and social issues, vocations and the like

RATINGS

By a rating is meant a judgment of one person by another. The value of a rating obviously depends upon the validity of the judgment of the person making it. Since people vary in this respect, it is advisable for each teacher to test her judgment by comparing her rating of children with those of other teachers. The accuracy of the ratings depends also upon the extent to which the judges understand what is being rated. Hence, any characteristic to be rated should be carefully defined. Some traits are intrinsically easier to rate than others. In general, ratings are most exclusively serviceable in the case of characteristics that are essentially the impression which one person makes on others — such traits as kindness, cooperativeness, leadership, submissiveness, fairness, aggressiveness, sociability, cheerfulness, and other such exceedingly important characteristics.

Suggestions for Improving One's Use of Ratings. A clear definition or description of the trait to be rated is important both for the purpose of improving the rating and for making clear to other persons (such as the teacher of the same pupils in later years) the meaning of the ratings. The subjective character of ratings makes it desirable to have a pupil rated frequently and by as many different persons as possible. Thus, frequent ratings, each carefully entered into the permanent school record of each child, are indicated. Since pupils often behave differently in the classroom from the way they do in out-of-school situations, ratings of persons other than teachers are desirable. Ratings of other children are also useful since a child's classmates not only view behavior differently from adults but also observe much that the teacher does not see.

Ratings of a Pupil by Other Pupils. Several procedures have been suggested for securing the ratings of one pupil by others. One good method is merely to ask the children in the class to write the names of the five pupils in the class who

are *highest* and the five who are *lowest* in the class in the trait. By giving a pupil a score of + 1 for every appearance in the first group and a score of - 1 for every appearance in the second, each child gets a quantitative rating of his status in the trait. Another technique is the "Guess Who?" technique extensively used by Hartshorne, May, and Maller.¹⁶ The pupils are supplied with descriptions of various types of behavior or kinds of persons and are asked to write the names of classmates who seem to be described. Thus a consensus of the class opinion concerning individual members is secured.

Other Types of Rating Scales. A major difficulty with ratings is that of defining the traits to be measured exactly enough to enable the rater to be consistent and other persons to understand what was appraised. A rating is, of course, merely a recorded judgment of a trait based on observation of behavior and is subject to the sources of error in the observation as well as those in the act of judging. It is better to attempt to rate pupils on the basis of concrete descriptions of behavior rather than on some general trait such as honesty, cooperativeness, or inventiveness. For example, the Winnetka Scale for Rating School Behavior and Attitudes¹⁷ consists of descriptions of everyday classroom activities in four areas: cooperation, social consciousness, emotional adjustment, leadership and responsibility. Under each are a series of statements such as:

When taking turns with apparatus or materials in a group discussion

- Waits for a turn
- Takes turn willingly
- Needs occasional reminder to be patient.
- Is too patient — does not assert himself.
- Is impatient while waiting turn
- Is unwilling to wait turn
- Is unwilling to wait turn and interferes with other children's activities

Two other lists like the above are provided. The scale is suggested for use over a three-year period with two ratings

each year in order to measure development. A scheme is provided whereby a total score is secured from the items checked in each list. As a basis of comparison, the authors provide a table showing the median scores obtained from children previously tested in each of the five areas of behavior.

The Haggerty-Olson-Wickman Behavior Rating Schedules utilize a report from the teacher on the persistence of certain types of overt behavior problems and the teacher's ratings on traits described in terms of specific activities. The schedule thus consists of two parts. The first part comprises brief descriptions of fifteen "behavior problems" such as cheating, unnecessary tardiness, overactivity, and temper outbursts. The teacher reports for each child that the described behavior: has never occurred; has occurred once or twice but no more; has occurred occasionally; or has occurred frequently. The second part consists of thirty-five graphic rating scales for various types of behavior traits. Following are examples ¹⁸

3 Is his attention sustained?

Distracted, jumps rapidly from one thing to another	Difficult to keep at a task until completed	Attends adequately	Is absorbed in what he does	Able to hold attention for long periods
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12. Is he easily fatigued?

Shows quick exhaustion	Does not have ordinary endurance	Endures satisfactorily	Rarely shows fatigue	Unusually vigorous and robust
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24 What tendency has he to criticize others?

Never criticizes	Rarely criticizes	Comments on outstanding weaknesses or faults	Has a critical attitude	Extremely critical. Rarely approves
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Reliability of Ratings. Repeated ratings by the same teacher show correlation of about .86; ratings of the same pupils by different observers correlate about .60. These

figures indicate that a teacher must be cautious in adopting a fixed opinion about individual children. He should hold himself ready to test his judgment by comparing it with that of other persons, and to modify his opinion in the light of new evidence. The correlations indicate, however, that the combined rating of several persons who have observed a child considerably should be quite reliable.

When ratings are carefully recorded in the child's school record for several years, they have real diagnostic value. A child repeatedly rating as "jolly," "well-liked," by teachers, fellow pupils, and others year after year undeniably "is" approximately what such words describe. A child whose ratings are near the opposite of these, or who is rated from one extreme to the other by different persons or at different times, "is" another sort.

THE DIAGNOSTIC INVENTORY

As research advances knowledge of the factors involved in learning in an area, specialists have tended to develop organizations of devices of appraisal termed the *diagnostic inventory*. The purpose of such an inventory is to help the teacher or a specialist secure really deep insight into a pupil's work. Such an inventory includes an outline of the specific information to be sought and instructions for using tests, instruments, observations of performance, analyses of errors, inventories of habits and interests — in short, for employing all available devices — for making a thorough diagnosis. Such an inventory is usually arranged in a manner that enables the classroom teacher to go as far as he is competent and then gives him guidance in deciding whether he has as much information as is necessary to handle the case or whether further assistance from a specialist is essential. For all pupils except the infrequent "special disability" the teacher can conduct the whole examination. Indeed, the diagnostic inventory is intended primarily for regular use in keeping tab on the important aspects of the progress of all pupils in this class. When the teacher

checks up carefully on his pupils at short intervals, he will readily spot the prospective "disability" case before he becomes a serious problem. A major purpose of the careful, detailed inventory is the prevention of disability and the saving of the far more difficult and expensive remedial work which results from inadequate awareness of difficulties in the making.

An Example of a Diagnostic Inventory. As an example of a diagnostic inventory in reading, a few sections of an outline of items examined at the primary level are reproduced.¹⁵

Outline of Items Considered in an Appraisal of Reading Ability

1. Background skills
 - a. Understanding of words (using oral vocabulary tests, such as Stanford-Binet or group reading-vocabulary tests)
 - b. Understanding of sentences, paragraphs, and shorter units (using standardized or informal oral tests).
 - c. Ability to understand class discussions (using observations and ratings)
 - d. Ability to cooperate in class discussions (using observations and ratings)
 - e. Voice and speech habits (using observations and ratings)
 - f. Ability to handle books, pencils, materials (using records, informal tests, and questionnaires).
2. Word-mastery skills
 - a. General status represented by age or grade or other standard scores (obtained from standardized tests) in such abilities as
 - Level and accuracy of silent word recognition.
 - Level and accuracy of pronunciation of isolated words.
 - Level and accuracy of recognizing and pronouncing words in oral reading of sense material
 - b. Methods employed in word mastery (discovered by observation and by analysis of errors, using such tests as above) to determine
 - Use of context clues
 - Attention to visual form of words as wholes.
 - Attention to syllables and phonograms.
 - Attention to letters.
 - Attention to miscellaneous details.
 - Parts mainly noted — beginning, middle, end, whole word

- Attention to sound characteristics of words, detects and sounds mainly syllables, phonetic elements, such as *tr*, *th*, individual letters, various elements
- c Characteristics of the pupil's word analysis (discovered by observation and by standardized or informal diagnostic tests) to reveal whether pupil uses quick and superficial or slow and laborious procedures
- Tries persistently or gives up quickly.
 - Tries different units, or sounds, or devices, or varies little from first response.
 - Sounds elements too independently or readily fuses them
 - Easily satisfied with any result or critical of results and willing to try again
 - Forgets to use context clues when studying word forms or combines use of context and word-form clues
 - Shows evidence of faulty directional orientations, resulting in reversal errors, confused order of parts
 - Shows zest in word analysis or appears tense, or bored, or annoyed

Characteristics and Uses of the Diagnostic Inventory. It will be observed from the comments in parentheses in this outline that a comprehensive diagnostic inventory is not based on any single type of test or appraisal but upon all sorts — standardized tests, informal objective tests, error analysis, observations of performance, records of activities in and out of school, instrumental tests as of hearing, eye movements, etc., ratings of teachers and others, questionnaires, etc. The policy in developing such an inventory is to outline and define the abilities, interests, attitudes, including defects, that are of significance in learning to read and then to develop the best possible appraisal of each. The result of such a diagnosis is not a single numerical score but a comprehensive interpretation which suggests the vital causes of difficulty and the remedial measures that will correct them. It should be noted, also, that such a diagnostic inventory is not designed to be of service only in helping the reading failure. It is developed to enable the teacher to understand better the instructional needs of every pupil. Even the best readers are

usually found to have minor faults which may be removed to enable them to become even more proficient.

Such an inventory, in other words, is in no strict sense designed merely for special corrective or remedial instruction. Indeed, the best use to which it can be put is to employ it as part of ordinary schoolwork in order to identify good habits and attitudes and encourage their further development and to forestall the need for remedial work by nipping in the bud the many slips and misunderstandings, errors and inappropriate techniques, unfortunate emotional tensions and misleading motives which, unnoticed, lead to trouble. The diagnostic inventory, in short, is an expression of the good teacher's desire to understand deeply and thoroughly what he is attempting to teach and how each child is responding to his guidance.

THE SPECIALIST'S CASE STUDY

The Case History. A teacher who uses such devices as have been mentioned, especially one who conducts systematic diagnostic inventories, is really making a "case study." In general this term merely refers to a comprehensive study of a single individual. This is the physician's work. He makes a case study, ranging from a very thorough to a superficial one, of each patient and he usually records the items on a card. As they accumulate with repeated visits, they comprise the "case history." It includes the important results of tests and observations, the diagnoses and the treatments applied. It is likely to include notes about the patient's past history as well as his present life. It is essentially a diagnostic inventory including items of importance from one's past. In all general features, the good teacher's technique is similar to that of the physician — at least this is true of the teacher who seriously studies the individuals in his class.

Good teachers, like good general medical practitioners, sometimes find individuals whose problems (or talents) are so exceptional as to make it advisable to call upon other spe-

cialists. Although education has lagged behind medicine in specialization, recent developments are producing persons more expert than teachers in certain areas, and effective co-operation between them is beginning to appear.

The Clinical Case Study. By the "specialist case study" (often called the clinical case study) we merely refer to the most intensive and thorough study of a pupil which science makes possible at the present time. In the typical instance, the case study is undertaken when the teacher feels that a pupil's problems are so subtle and involved as to require the attention of specialists. The major problem noted by the teacher may be a serious and persistent "disability" in reading, spelling, arithmetic, or some other subject, loss of interest, an emotional disturbance, an unusual social attitude, or any one or more of many other symptoms. Much less often — far too infrequently indeed — the specialist is called upon to advise concerning a striking special interest or talent such as a phenomenal memory or insight, or extraordinary inventiveness or originality, or an intense interest in some area.

The Case Study of "Special Disabilities." The special disabilities may be the result of relatively specific mistakes, deficiencies, or events or they may be the outcome of far-reaching organizations of the individual's experiences and equipment. Special gifts may represent relatively narrow sources or be expressions of the "person as a whole." In any case, the diagnostician is likely to profit by the contributions of various specialists. Many cases, indeed, will tax the combined resources of a group of the best equipped specialists. A reading disability, for example, may require the attention of the general physician, the eye and ear specialist, the clinical psychologist or psychiatrist, the specialist in intelligence and aptitude testing, and others in addition to the reading specialist who is expert in analyzing the reading techniques of the pupil and the methods and materials employed in teaching him. In particular, the case study demands a thorough survey of the pupil's history in home and school. The pupil's present

and past relationships to his parents, his brothers and sisters, his out-of-school playmates and activities as well as his past and present relationships and activities in school are important. A full and clear report of a pupil's life is always useful and often indispensable for a valid diagnosis and remedial program.

The child who is educationally or socially maladjusted corresponds to the child who is physically ill. The consequences of the former are often more serious and persisting. They are, perhaps, on the whole less likely to cure themselves or to respond to simple home remedies. They are certainly much more likely to be mistakenly regarded as "oneryness" instead of illness. That development of greater skill and insight in dealing with such educational, vocational, and social disabilities, and, it is hoped, with special talents as well, will become a major purpose of research in the immediate future seems practically certain. This will be a development of appraisal in a larger sense than mere testing of specific attainments in the school subjects. Important progress has already been made in certain areas to which several following chapters will be devoted.

THE PERMANENT CUMULATIVE RECORD

Research in psychology and related fields such as educational guidance has shown that a pupil's difficulties, attainments, purposes, beliefs, and possibilities can rarely be fully understood by study of him, however thorough, at any particular time. The pupil's past lives in his present. Even an I Q. obtained by test today is better understood when the records of previous intelligence tests, achievement tests, health, and many other facts concerning previous years are available for inspection. Every available fact about a pupil is charged with deeper meanings which can be perceived only when viewed in relation to the stream of events in his life's history. Most facts obtained from tests, observations, self-analyses, and otherwise are but approximations to points

which inscribe a curve or trend that began in the distant past and will be extended into the future. The important task is to perceive the curve or trend and the factors which have or will influence it and to appraise the present in relation to it. It is important to know whether the present week's achievements and attitudes are in line with the life trend or clear deviations from it. In the latter case, it is important to discover the causes of the variation. Usually, the story of the past outlines the plot of which the present is but an episode. The story of each pupil's past should, therefore, be on record in as clear and definite a form as possible.

Essentials for the Permanent Record System in Schools.

Although a large proportion of American schools employ some permanent record system, the cumulative records are often far from satisfactory. They often are lacking in effectiveness of selection and display, even when they are voluminous. More often they are incomplete and ambiguous. Efforts to improve them have led to the development of a definite permanent record system including usually (a) a printed card or series of cards providing for entries of the most important data in a standardized form arranged for maximum ease in locating and understanding the entries made year by year and (b) durable folders in which the most important of the more detailed data obtained from tests, observations, physical examinations, interviews, ratings, and other sources are preserved. In many school systems, such packets of records are started in the kindergarten and follow the pupil to the end of his high school career. For many educational purposes, these records are of prime value, as a few illustrations will show.

Uses Made by the Classroom Teacher of Permanent Records. A good cumulative record enables a teacher to learn much about the pupils in a "new" class before they come to him. Without such data, the task of becoming acquainted in any intimate way with a group of thirty or forty pupils is an enormous one which will require weeks of intensive study

during which his guidance and instruction can scarcely be effectively adjusted to individual needs. A good record will not only disclose a pupil's attainments and difficulties in the various school subjects, but vital information about his interests and hobbies, his fears and sensitivities, his response to praise and criticism, his stamina and sensory limitations, his aspirations, his out-of-school activities, the characteristics, ambitions, and attitudes of his parents. Such data as these are of vital significance in everyday teaching.

Uses Made by Other School Officers of Permanent Records. A good cumulative record is indispensable for the guidance of other school officers. For example, the librarian can secure important suggestions for guiding a pupil's reading from a good report on the level and rate of a pupil's reading and the character of his hobbies and out-of-school activities. A comprehensive cumulative record is indispensable to the guidance officer as a basis for advice on educational and vocational prospects. The director of athletics or recreation needs information about the past physical interests and activities which a good cumulative record would contain. As pointed out in the preceding sections, a case study by the teacher or a specialist cannot be comprehensive without a good history of the pupil. To attempt to trace a history from scattered sources is exceedingly expensive and rarely entirely satisfactory.

Other Values of the Permanent Record. Finally, certain objectives of education and certain school practices can be appraised only when records covering several years are available. For example, in the Speyer School, established for groups of slow-learning pupils (I.Q. seventy to ninety) and rapid-learning pupils (I.Q. above 130), it required several years to show what changes in certain areas the new types of programs were producing. One objective of the program was to develop greater interest and activity in a variety of large scale enterprises involving cooperative teacher-pupil planning in art, handicrafts, music, exploration, dramatics, etc. Another

was to give each pupil a better sense of his educational and vocational possibilities and to cultivate an emotional acceptance of the types of future schooling and vocational training which seemed most promising. These objectives were of such a value that stable changes could be expected to appear only after several years of experience. They could also only be fully appraised when records of activities of similar children in other types of schools could be secured for comparison. In many respects, the records of things done, opinions expressed, and future plans actually accepted during a period of several years provided the only clear evidence of the changes actually made. Competent judges, studying these records, agreed that certain changes in behavior commonly regarded as intangible did in fact occur. A comprehensive record, in other words, permits the appraisal of certain changes in behavior which can be secured in no other way.

The foregoing discussions lead us to the conclusion that schools should undertake a program of evaluation far more comprehensive than any objective testing program can be. Data obtained from tests, standardized and informal, from physical and mental examinations, from observations of behavior of many types, from diagnostic inventories, from ratings and questionnaires, from records of things said and done should be secured and recorded to form a comprehensive cumulative record of each pupil.

OTHER EFFECTS OF A COMPREHENSIVE PROGRAM OF EVALUATION

In addition to the services previously mentioned, other values may result from a comprehensive program of appraisal. Some of these are so well expressed by Tyler that they will be quoted:

Another purpose of evaluation is to provide a certain security to the school staff, to the pupils, and to the parents. The responsibilities of the school are broad, and they involve aspects which seem quite intangible to the casual observer. Frequently the school staff be-

comes a bit worried and begins to doubt whether it is really accomplishing its major objectives. This uncertainty may be a good thing if it leads to a careful appraisal and constructive measures for improvement of the program, but without systematic evaluation the tendency is for the staff to become less secure and sometimes to retreat to activities which give tangible results although they may be less important. Often we seek security through extraneous procedures which are extraneous and sometimes harmful to the best educational work of the school. Elementary-school teachers may sometimes devote great energy to spelling and handwriting because the results are tangible, at the same time neglecting other aspects of their work which involve less tangible outcomes. For such teachers a comprehensive evaluation which gives a careful check on all aspects of the program would provide the kind of evidence that is necessary for their continued growth and self-confidence. Pupils and parents are also subject to this feeling of insecurity and in many cases desire some kind of tangible evidence that the educational program is effective. If this evidence is not provided by a comprehensive plan of evaluation, then pupils and parents are likely to turn, for security, to tangible but extraneous factors.

Another purpose of evaluation is to provide a sound basis for public relations. No factor is so important in establishing constructive and cooperative relations with the community as an understanding on the part of the community of the effectiveness of the school. A careful and comprehensive evaluation should provide evidence that can be widely publicized and used to inform the school community about the values of the school program. Many of the criticisms of the school expressed by taxpayers and parents can be met and turned to constructive cooperation if concrete evidence is available regarding the accomplishments of the school.²⁰

SUMMARY AND CONCLUSIONS

Educational Values of Appraisal. The considerations presented in this and the preceding chapter should make it clear that the appraisal of the results of education is a very difficult and complex problem. Whereas a few decades ago it was implied that anyone without special training could test attainments merely by asking questions or observing conduct, it is now recognized that appraisal is a very intricate and complex task. Indeed, it is one of the most difficult and

perplexing problems the school has to face. A comprehensive and valid evaluation of the outcomes of teaching can be secured only through the conscientious efforts of well-informed persons. If education is to improve its efforts to attain its many, and increasingly complex, objectives, however, it must develop comprehensive and valid programs of appraising its products. Maximum improvement in teaching cannot be achieved in ignorance of the changes produced by the innumerable materials and methods employed in the profession.

It was implied in our discussion that the starting point in any program of appraisal is the rounding up and clear definition of the objectives sought by the school. These objectives must be analyzed and reduced to definite descriptions of the abilities, interests, and attitudes which the school aims to help the pupils acquire.

The Choice of Methods of Appraisal. When the objectives of education are thus definitely understood and detailed, one should select the most promising methods and devices for appraising the pupil's progress toward them. In some instances standardized objective pencil-and-paper tests provide the best measurements, especially the more obvious objectives of the school subjects. Often, however, teacher-made objective tests should be used to supplement or even to supplant the published standardized tests. For other purposes, tests and analyses of errors, observations in typical school situations or especially controlled settings, records of anecdotes, ratings by the classroom teacher or other persons or both, analysis of records of things done in home or school, or of diaries or schedules kept by the pupils, or of responses to interest and attitude questionnaires, study of activities recorded by special instruments, such as phonograph records of singing or speaking, or photographic records of eye movements, and other devices may prove to be most useful.

Individual Differences in Skills in Using Various Methods of Appraisal. Certain guiding principles are available for evaluating all types of devices for appraisal. It

cannot be said that any one device is best for all — or for all persons. The ability to make critical use of the major concepts in the physical sciences can be tested in several ways. Some persons are so clever in developing test items and test situations as to be able to improve on any standardized test available, but others are far less ingenious. Each teacher should therefore learn to evaluate his own methods of appraisal by applying the general principles of validity in test construction to his own work.

The Test of Validity. Most important is the test of validity. It is futile — indeed, it may lead the teacher astray in his teaching — to use any method unless it appraises the thing the teacher wishes to evaluate. Validity, of course, varies in degrees from very low to very high. The test or appraisal to use is the one, other things being equal, which gives the optimum degree of validity for the purpose in hand. The test of validity should be applied to all the possible alternatives; to observations, ratings, questionnaire data, tests, essay examination grades, etc. No greater mistake could be made, for example, than to substitute an essay examination or an observation for a standardized test because the established validity of the latter is not markedly high. The validity of the appraisal based on the essay might be much lower. Indeed, the appraisals secured from observations, anecdotal records, personal ratings, and the like are, in many instances, quite low unless they are conscientiously and carefully made by well-trained and well-informed persons.

The Test of Reliability. A second important test is embodied in the principle of reliability. Observations or tests or ratings may be of proper type but too limited to give reliable results. If repeated on another day, the appraisal might indicate a quite different status for many pupils. It is therefore essential to see to it that the appraisal is sufficiently reliable or stable for the purpose in hand. This test should be applied to ratings, observations, etc., as carefully as to pencil-and-paper tests.

Other Tests. Finally, the cost and convenience of the method of appraisal should be considered. The speed of reading can be measured by photographing the eye movements with an expensive machine or by using a standardized pencil-and-paper test or by noting the amount read in a given time in books already available. All three methods give certain data, but each yields certain unique information. The photographic record gives a unique picture of the eye movements; the standardized test provides a unique appraisal of fullness and accuracy of comprehension, and the informal book reading test provides the most natural setting. This is a rather typical situation. The question of the costs of the information, the time of teacher and pupils, the educative values of the test experience itself should all be weighed before a choice is made. In short, many practical considerations must be given due weight in the development of a comprehensive program of appraisal.

QUESTIONS AND EXERCISES

1. If possible, secure some samples of standardized or teacher-made tests and evaluate the items in them in accordance with the suggestions offered in the chapter.
2. Attempt to develop an outline indicating the major uses, the important merits and defects of several types of tests similar in a general way to the outline quoted in the text concerning the multiple-choice. If possible, secure one of the texts giving details concerning these several types of tests and compare your outline with the statements in it. A possible plan would be for students working together to divide up the task, having one or a small committee study one type such as the true-false, another study another type, etc.
3. If you made up tests for the preceding chapter, restudy the items and the tests as a whole in the light of suggestions given in the present chapter.
4. It would be interesting for students to do a little experiment designed to reveal the validity and reliability of their ratings of an essay examination. Types of such experiments are suggested in the text of this chapter.
5. Under what circumstances and for what purposes do you feel the use of essay examinations is justified?

- 6 Why are norms valuable in interpreting the significance of errors as well as in interpreting the significance of the total positive score on a test?
- 7 Draw up a list of some of the important objectives in education which can be appraised only by observing activities
- 8 What, in your opinion, are the best ways of sizing up such characteristics as cooperativeness or friendliness in the case of elementary school pupils?
- 9 Give some illustrations of instances in which objectives of education have really been primarily derived from scientific study
10. What is the difference, if any, between a questionnaire and an objective test?
- 11 Enumerate some characteristics in which the ratings of one pupil by other pupils would probably be exceedingly useful.
12. What are the special values of the permanent cumulative record? List the most important items to include in such a record
- 13 Can you mention some of the uses which might be made of good test results in addition to those mentioned in the present and preceding chapter?
14. John Doe is 10 0 years old, his mental age is 11 years, his reading age is 9 0 years, his spelling age is 9 5 years, his language usage age is 10 0 years, his arithmetic age is 14 5 years. Compute John's I Q and diagnose his educational accomplishments and peculiarities as far as is possible from these data. If John's teacher had asked you to study this boy because, as she reported, "There is something funny about his work in school," what further data would you attempt to get and how would you go about getting them?
- 15 In schools, as you know them, what do you consider to be the main fault — testing more than is necessary, testing less than is advisable, testing the wrong things, unreliable tests and examinations, failure to make constructive use of the results of tests? Suggest other faults that occur to you
- 16 What suggestions would you make for improving the program of testing and evaluation in the school which you had in mind in answering the preceding question?

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CHAPTER XVIII

The Adjustment of the Individual

Previous chapters have afforded a wealth of material bearing on the adjustment of the individual. The discussion of intelligence yielded insight into its importance in the adjustment process. All the chapters on development of behavior, especially those on the development of social and emotional behavior, emphasized important points fundamental to an understanding of the present and immediately following chapters. The chapters on learning, especially those dealing with problem solving, revealed the essential nature of the process by which adjustive behavior is learned.

In the present chapter we shall take up the concepts of adjustment, needs, and goals. We shall consider the types of situations in which goals are blocked, and discuss the methods used by both children and adults in dealing with such situations. In Chapter XIX we shall treat specifically the conditions in the home, school, and, to a lesser extent, in the community which tend to interfere with the adequate personality development of the child. In Chapter XX we shall devote considerable space to a discussion of how to develop an understanding of the individual child and then how to help him. Finally, Chapter XXI will deal with the problems and satisfactions associated with the teacher's status as an adult and as a member of the teaching profession. Our aim is to describe the underlying forces which bring about constant and varied efforts at adjustment on the part of the child and to indicate the teacher's role in increasing the child's, as well as his own, efficiency and happiness.

CAUSES OF ADJUSTMENT OR MALADJUSTMENT

Adjustment refers to the relationship — the degree of harmony — between the individual and his environment. An individual is said to be well-adjusted when his relationship to his milieu is such that he can be characterized by the terms "efficient" and "happy." (Of course all gradations of efficiency and happiness exist, and the particular point at which one ceases to consider an individual well-adjusted is to some extent arbitrary.) The degree of harmony depends in part upon certain potentialities within the individual. Because of organic defects, sensory and motor deficiencies, or various bodily weaknesses, some individuals are handicapped from birth in their efforts to cope with the environment. There is some evidence, also, that there may be innate factors of as yet quite obscure character which tend to determine in large measure the individual's capacity to adapt to conditions entailing stress and strain.

The degree of harmony also depends in part upon certain characteristics of the environment. Even if the individual begins life with all the organic and innate factors in his favor, it is still necessary for him to live in an environment which provides satisfactions for his basic needs in order for him to become a well-adjusted individual. What these needs are will be discussed in the succeeding section. Here, however, it is pertinent to point out that, when maladjustment exists, the major sources are not necessarily found in the individual; they may lie in the environment, or in both the individual and the environment. It is not even possible to allocate the major sources to one or the other, since frequently the causes can be ascribed only to the interaction between them. Furthermore, the changes essential to effect a readjustment need not necessarily take place in the individual. The commonly accepted definition of social adjustment as "the changes in habitual conduct or behavior which an individual must make in order to fit into the community in which he lives" ¹

must be rejected because it implies that the community is unchangeable and that, regardless of the extent to which it fails to meet basic needs, the onus is on the individual to make the necessary modifications in himself. Obviously one should not expect an individual to make his behavior fit into that of a slum community which has a high crime rate and many centers of vice.

THE NEEDS OF THE INDIVIDUAL

Behavior does not occur in the absence of what have been variously called drives, impulses, urges, motives, cravings, desires, wishes, and needs. (For convenience we shall make no attempt to distinguish between these terms but shall refer in most instances to such impelling or directing aspects of behavior simply as needs.) The significance of these needs in the life of the individual is thus described by Prescott:

. . . the structure of the organism, the processes of society, and the nature of a person's experiences contrive to give rise to a series of needs . . . which must be met if wholesome personality development is to be achieved. These needs are the basis of permanent adjustment problems which all of us face. They are more or less continuously with us. Our behavior is patterned in accordance with what experience has shown us to be the most satisfactory means of working them out, but, as conditions around us vary and change, we are continuously under the necessity of modifying our behavior. These needs become sources of unpleasant affect and even of serious personality maladjustments if they are not met adequately. Furthermore, our society is rich in circumstances which deny to individuals the fulfillment of one or several of these needs and quasi-needs for periods of varying length — this is what has happened to thousands of maladjusted school children. There is a serious disharmony between the needs which they feel to be vital to themselves and the experiences in life as they meet them.²

Authorities do not completely agree as to which are the basic needs, that is, those which must be met by the environment in order for the individual to be happy and efficient. Concerning the importance of certain organic needs — for air, food, liquid, proper temperature, rest, sleep, and elimination — there is little difference of opinion; nor is the physi-

ological basis of the activity drive and the sex drive denied. There is less agreement concerning the so-called *psychological* needs. Of these, perhaps the most important are:

The need for affection — to live in a relationship of reciprocated warm regard with one or more individuals

The need for belonging — to feel that one is an accepted, valued member of a group

The need for independence — to be able to make one's own decisions and carry out one's own plans

The need for social approval — to feel that one's personality and one's actions are respected and admired by others.

The need for maintaining self-esteem — to feel that one's conduct comes up to certain inner standards and thus merits one's own respect³

The Interrelation of Needs. The needs listed above are not entirely distinct. Behavior which brings about social approval or disapproval almost invariably enhances or depresses the self-esteem as well. But that the two needs are not identical is evident from the fact that an individual may feel ashamed when his conduct falls below his own standards even when this is not known by others. Both self-esteem and the need for security (a convenient name for the combined needs for affection and belonging) may be involved in the satisfaction of organic or other personality needs. When this is the case, the effect on the personality of gratification or frustration is heightened. Sometimes a minor desire may have in addition a symbolic value relating to a basic personality need. As Maslow has pointed out,

Thus a certain child deprived of an ice-cream cone which he wanted may have lost simply an ice-cream cone. A second child, however, deprived of an ice-cream cone, may have lost not only a sensory gratification, but may also feel deprived of the love of his mother because she refused to buy it for him.⁴

Other Characteristics of the Needs of the Individual. Needs may be periodic or persistent. Hunger, it should be

noted, tends to be periodic or recurrent; it appears and disappears, to be sure, when one has been fully fed. It may show a periodic character without wholly disappearing when not satisfied. Careful observations have shown that it becomes more acute at more or less regular intervals. Some other needs show periodicity over a wider scale. The best illustration is the sex urge which in some animals appears only at a certain season, persists in a highly active stage for a time, and then subsides entirely. The personality needs mentioned are experienced all the time although they are likely to be most acute when they are thwarted.

In spite of the fact that most important adjustment problems center around these basic needs (especially the personality needs), they do not in themselves constitute the only springs of action or the only needs which an individual strives to satisfy. As has been emphasized in a previous chapter, activities that derived their original motivating force from the fact that they fulfilled basic needs may become independent of their original connection and yet retain their dynamic power. Allport gives the following illustration.

An ex-sailor has a craving for the sea . Now the sailor may have first acquired his love for the sea as an incident in his struggle to earn a living. The sea was merely a conditioned stimulus associated with satisfaction of his "nutritional craving." But now the ex-sailor is perhaps a wealthy banker; the original motive is destroyed; and yet the hunger for the sea persists unabated, even increases in intensity as it becomes more remote from the "nutritional segment" ⁵

Some habits may even become the equivalent of needs. For example, a man who is used to sitting in a certain chair after dinner may not be willing to sit elsewhere even though other chairs are just as comfortable.

THE GOALS OF THE INDIVIDUAL

An activity or state which to some extent satisfies an individual's need or needs is called a goal. To illustrate, let us suppose a hungry child sees an apple on a near-by table. One

could say in interpretation that the activity of eating the apple is the child's *goal*; the apple itself is the *goal-object*. It might seem preferable, as well as simpler, to call the object (the apple) the goal, but this practice would be inappropriate in other situations in which there is a goal but no goal-object. An adolescent, for example, may wish and strive to be popular; hence one would say that his goal was popularity, but obviously, in this case, no goal-object exists.

Some needs, such as the need for sleep, can be satisfied by but one specific goal while others may be fulfilled adequately by any one of a number of goals. When an individual is too warm, he may obtain a similar degree of relief by sitting near an electric fan, drinking cold water, or going to an air-conditioned movie theater. More often it happens that when needs may be met by a number of goals, certain goals are preferred by the individual because they offer a greater degree of satisfaction than the others. A dull boy may have a strong need for social approval. His original goal is to excel in his studies, but he finds he is unable to do so. He may then turn to athletics (a less attractive goal to him). If unsuccessful in that too, he may take up stamp collecting (a still less attractive goal) and show off his collection at every opportunity. Usually in everyday life the achievement of one goal provides satisfaction for a number of needs. To many adolescent boys, for example, a job is a goal related directly to the needs for independence, social approval, and self-esteem, and indirectly, through its provision for an opportunity for marriage, to the affectional and sexual needs.

THE NATURE OF ADJUSTMENT PROBLEMS

An adjustment problem confronts the individual whenever a need is thwarted or progress toward a goal is blocked. The arousal of a need is accompanied by tension in the individual. In the case of hunger, this tension appears to be a recurrent contraction in certain visceral muscles; in the case of other needs, the character of the tension is not yet completely

known. Thus the need with its tension constitutes the immediate source of motivation for the ensuing action — typically for action in the direction of a goal. If the goal is not blocked, progressive action toward the goal occurs and obviously there is no adjustment problem.

Blocking results in a condition of heightened tension caused by the arousal of emotion in the individual. The effect of this emotional state upon the individual depends to some extent upon its intensity. If the emotion is not too strong, a feeling of annoyance serves usually to increase the motivation to “get around” the barrier to find a solution. This is accompanied by an increased mobilization of energy which may be used to advantage. Yet despite these favorable factors, the effect of the frustration upon thinking is not often salutary. The thwarted individual may be somewhat handicapped in responding in an adequate manner to the many problem situations in life which require for their solution calm judgment or skill rather than strength or just more activity. The effect may also depend upon the nature of the emotion. If it takes the form of anxiety or despair, as, for example, when the individual interprets the thwarting of a strong basic need as due to his own deficiency or as a threat to his security, the individual’s likelihood of making an adequate response is much reduced.

In any case, the individual reacts to the adjustment problem typically by making some attempt to discharge (eliminate) or reduce the tension, that is, to reach a solution. Whether the solution reached is complete, partial, or temporary depends upon the specific characteristics of the problem and of the individual concerned. A later section of this chapter will be devoted to a description of methods by which tension is reduced.

THWARTED NEEDS AND BLOCKED GOALS

A distinction can be made between a thwarted need and a blocked goal. The phrase *thwarted need* refers to a situation in

which all goals which will satisfy the need of the individual are blocked. The coined phrase *blocked goal* refers to a situation in which one specific means of . . . the need is cut off. There is no necessary implication that no other goal can meet the need, at least partially. (Only in the rare instances in which there is but one goal that will satisfy a need does a blocked goal become the equivalent of a thwarted need.) While a distinction between a blocked goal and thwarted need has technical importance, it can be used only with reference to specific individuals in situations that are completely understood; it has no significance for the following general discussion.

The classification of the factors that . . . thwarted needs and blocked goals, like the listing of basic personality needs, is a somewhat arbitrary procedure. There is some degree of overlapping, but the categories are essentially useful. Rather than a definitive statement, the groupings should be considered as tentative in character, designed to call attention to the principal types of conditions and events which produce adjustment problems. Thus, blocking may be produced by (1) physical factors in the environment, (2) social and societal factors, (3) economic factors, (4) personal defects or limitations, (5) incompatible goals, and (6) the individual's moral standards. The last three are sometimes grouped together under the heading "conflict."

Physical Factors in the Environment. Important needs may be thwarted by natural obstacles or events in the inanimate world such as barrenness of the soil, floods, drought, and earthquakes; less basic needs may be frustrated by having the mountain road cut off by an avalanche, an automobile which cannot be started, the skating pond not yet frozen over. Distance may also act as a barrier to the man who lives on an isolated farm or to the forest ranger.

Social and Societal Factors. Perhaps the most frequent source of thwarting in children's lives comes from the restrictions and prohibitions placed on them by adults, and

it is probably true that most thwartings in adult life result from the *activities of other individuals*. A few examples may be cited: a woman is snubbed by her neighbor; a young man is refused a dance by a popular girl, a man about to park his car on the street finds that the place has just been preempted. Other social thwartings are less trivial. A politically ambitious man finds that his expected nomination for senator will not be made; a clerk works hard for promotion but is denied it; an employee is fired at the whim of an employer — these are frustrations which present the individual with a serious adjustment problem.

Any rule, custom, prejudice, ordinance, or law with which the individual is not in sympathy constitutes a societal thwarting. Of course if the individual feels that the rule or law is justified, the thwarting must be considered only partially societal in nature because his own values will be involved as well. For the small-town woman teacher, prohibitions against marriage are common, and some communities deny her the right to live in an apartment. Among the most damaging thwartings are those which occur as a result of prejudice against members of minority groups, such as Negroes and Jews. The emotional tension engendered by such thwartings is unusually strong in communities in which there is an assumed, but not actual, absence of race prejudice. Such a situation frequently leads to pervasive feelings of insecurity and inferiority.

Economic Factors. The direct and indirect thwartings caused by insufficient income are too obvious to require elaboration. Persons on "relief" find it difficult to satisfy even their organic needs, and those with slightly higher incomes commonly experience an inadequate fulfillment of their needs for independence, social approval, and self-esteem.

Personal Defects or Limitations. Personal deficiencies, either real or imaginary, may constitute a source of thwarting. It is easy to see how certain organic conditions may block goals. The boy with a weak heart is unable to engage in

strenuous games with his peers. The adolescent girl who is oversize may find herself without dates. It should also be recognized that many physical and social thwartings may be attributed by the individual to limitations in his own ability or personality. With this precedent, subsequent failures in different and less difficult situations are likely to follow.

Incompatible Goals. An individual may, so to speak, thwart himself when he has contradictory desires. A young man may wish to marry and also obtain a Ph.D. degree, which requires three years' study in a graduate school. He cannot afford both. A certain boy may wish to dive in order to gain the admiration of his friends but is afraid he may dive so poorly that he will not only hurt himself but lower their opinion of him. An adolescent may wish to become independent of his parents but feel unready to assume an adult's responsibilities.

The Individual's Moral Standards. The individual's code of ethics, moral standards, or conscience may thwart an urge. Most children are confronted at some time with the conflict between stealing and not stealing an object. Stealing may bring the thrill of danger, the admiration of the gang, the satisfaction associated with the possession and use of the object, but, on the other hand, the fear of being caught and punished may act as a strong barrier. In addition, if the child has incorporated into his personality the high moral standards of his parents and other adult associates of his earlier years (and, consequently, is in sympathy with the law against stealing), the prospect of suffering "pangs of conscience" acts as a further barrier to the contemplated act. Cheating in an examination versus not cheating places the child in a similar dilemma. Particularly severe conflicts often center around the sex urge.

Conflicts may center not only about contemplated actions but around those already carried out. When this is the case the individual's feeling of guilt prompts him to make amends for his deed, but he is held back by the anticipated unpleasantness connected with the loss of prestige, the social disgrace,

and the possible punishment which may be a consequence of his act of restitution.

Desirable Aspects of Frustration. Although the thwarting of needs is usually considered to have a baneful effect on the personality, this is by no means always the case. Unfortunately the innocuous character of many thwartings and the beneficial effect of others has received very little of the researcher's attention. Consequently it is possible to do little more than to mention certain criteria by which serious and less serious adjustment problems may be distinguished.

It appears likely that absence of thwarting is not conducive to the development of a differentiated personality. J F Brown states, "Without any blockage, the individual remains a mediocrity, stupid, unimaginative, with 'cowlike content.'"⁶ The study of certain mountain communities by Sherman and Henry⁷ supports this opinion. In the communities where conditions were extraordinarily simple and few frustrations were encountered, these investigators found that the personalities of the children developed very little after the years of early childhood. They also found, as might be expected, that the children had great difficulty in responding adequately to novel situations.

It is probable that a certain amount of thwarting is required in order to develop the necessary understanding of one's own limitations and an adequate conception of reality. It is also probable that the experience of meeting problems and making an adequate adjustment is essential for the development of an independent, self-sufficient individual. Although the process is preeminently frustrating, an individual must learn to renounce many egocentric desires as he emerges into full status as a responsible member of society.

CRITERIA FOR JUDGING THE GRAVITY OF THE ADJUSTMENT PROBLEM

Now let us consider the criteria by which the gravity of an adjustment problem may be judged. The proposed criteria

are: (1) the basic versus nonbasic character of the need, (2) the duration of the frustration, (3) the number of needs thwarted, and (4) the degree of awareness of the frustration or of the source of the frustration on the part of the individual. When basic needs are involved, the duration, number, and degree of awareness are important considerations. When nonbasic needs are involved, the other criteria are relatively unimportant.

The Basic Character of the Need. It is self-evident that the frustration of a basic need is more likely to have harmful results than the thwarting of a minor desire. There is a minimum satisfaction of organic needs required for survival, and the individual can hardly emerge unscathed from a milieu that frustrates the needs for security, affection, social approval, and self-esteem. As has already been mentioned, a minor desire may be connected with a basic personality need; thus one cannot always tell from appearances whether or not a basic need is involved. Furthermore, the frustration of a basic need is likely to arouse an emotion which may be concealed from the casual observer but which makes an adequate response to the situation difficult. Fortunately the vast majority of frustrations an individual encounters in his daily life are concerned with needs of less imperative character than basic needs.

The Duration of the Frustration. Prolonged frustrations are obviously more serious than short-term ones. The repeated arousal of intense emotion is likely to have a deleterious effect on bodily functioning. The individual is likely to become more discouraged the longer the thwarting lasts. However, if the individual has reason to believe that the frustration will end at some definite future time, he is better able to bear the distress of the present. The American colonists were able to endure the frustration of many needs because they had faith that through hard work they could achieve their goals. Severely prolonged thwartings may occur in situations in which no adequate solution is possible, as, for example, when

the objective situation is unalterable or when there is an almost equal balance between strong incompatible goals. The latter situation is well illustrated in a story by Somerset Maugham which might easily be duplicated in real life. A highly ambitious and rising young diplomat fell in love with a girl of questionable reputation. Continuing his diplomatic career meant giving up his sweetheart; marrying her meant giving up his career. He decided in favor of the career but regretted the decision for the rest of his life. Had he chosen the girl, he undoubtedly would have regretted similarly the lost career.

The Number of Needs Thwarted. The thwarting of many needs is more serious than the thwarting of one. It makes little difference whether the frustrations come simultaneously or in quick succession. A woman who is completely dependent upon her husband for the satisfaction of her sexual and affectional needs, and who depends upon him for the maintenance of her self-esteem and for economic support too, must face a real crisis if he dies. A young man who fails in college, returns home to find his father dead, spends much time in the fruitless search for a job, and who later is injured in an automobile accident faces an exceptionally difficult adjustment problem.

The Degree of Awareness of the Frustration or the Source of the Frustration. The degree to which the individual has insight into his own needs and feelings and his awareness of the identity of the specific source of the frustration constitute an important criterion. When a goal is blocked by a physical, social, or economic factor, the individual is usually aware of the significant factors in the situation. On the other hand, when some needs are thwarted by other incompatible needs, by personal defects, or by moral standards, he may or may not be conscious of the significant factors involved. In many cases, the individual may be completely unconscious of strong needs. (It is not necessary to postulate an area or entity called *The Unconscious* to accept this fact.)

A serious conflict between basic needs may become established without the individual's being aware of what his trouble is.

Clinical evidence of unconscious conflict. Clinical studies often disclose cases of unconscious conflict. One married woman, for example, found it very difficult to make up her mind about a good many things. She was unable to account for her indecision and was considerably troubled by it until a therapist suggested that she had *conflicting* needs with respect to her husband. She had a strong need to be dependent upon him and, at the same time, a strong need to be independent of him, but was unaware of either need. Her difficulty in making decisions was, possibly, the outcome of this conflict. Although this example of "unconscious conflict" from a clinical record is open to several possible interpretations, instances of unconsciously derived conflicting tendencies can actually be produced, experimentally, through the technique of hypnosis.

Hypnotically induced conflict. Individuals may be given instructions during hypnotic sleep which they later carry out in the waking state but which they cannot recall. Thus, in effect, subsequent behavior based on such instructions is unconsciously motivated. One of the most convincing demonstrations of the existence of "unconscious conflict" by means of hypnosis was made by Erickson. He described his procedure as follows.

During profound hypnosis the subject [a confirmed smoker] was instructed to feel that smoking was a bad habit, that he both loved and hated it, that he wanted to get over the habit but that he felt it was too strong a habit to break, that he would be very reluctant to smoke and would give anything not to smoke, but that he would find himself compelled to smoke; and that after he was awakened he would experience all of these feelings, though not remembering that he had been told to have them.⁸

During a casual conversation after the subject was awakened, the hypnotist offered him a cigarette. The subject said he preferred his own brand and reached for them. Then ensued a series of delaying activities. These included not

being able to find his cigarettes, then after finding them mislaying his matches, then mislaying his cigarettes, then finding them again and dallying with them, then becoming so engrossed in the conversation that he let his match go out. After he finally succeeded in lighting his cigarette he let it go out, and after lighting it again he "accidentally" put it out. During all these activities he appeared to be greatly embarrassed at being so awkward. His actions reflected faithfully the conflict which had been hypnotically induced, but he was quite unaware of the origin of his difficulties.

The extent to which a person is aware of needs and impulses is a matter of practical importance. In general, an individual's control of his behavior in response to a need depends considerably upon the extent of his awareness of the need. Unconscious needs are unconscious for a reason — because they are incompatible with the self-esteem or with the conscience. One of the major aims of modern psychotherapy is to bring to full awareness those impulses and feelings which are not recognized at all, or at most are only dimly realized. When the need becomes clearly evident, the individual is in a much better position to work out a permanent solution to his life's problems.

Influence of unconscious conflict on adjustment. Among those who admit the existence of unconscious conflicts there is disagreement concerning the extent to which the conflicts affect adjustment of the "normal" individual. Allport, for example, is inclined to think that their effect has been overemphasized. He says:

Although the importance of conflict in the evolution of the individual personality is under no circumstances to be denied, it seems that only in exceptional cases is the psychoanalytic emphasis on its unconscious operation fully justified. Most conflicts, psychoanalysis to the contrary notwithstanding, are conscious in all essential particulars . ⁹

Brown, on the other hand, states:

The most important discovery of modern psychodynamic theory is that of unconscious conflict and the mechanisms of its resolution.

... Unconscious conflict plays an important role in the growth of the "normal" personality . . . In fact, much of the behavior of the "normal" adult is determined by unconscious conflict. . . ¹⁹

Only by further research and study can evidence for the relative correctness of these two points of view be obtained.

Individual Differences in Ability to Adjust. Although these criteria for judging the seriousness of an adjustment problem may be used as a guide in most instances, the personality structure of individuals differs greatly. It has already been mentioned that there probably are native individual differences with respect to the amount and severity of frustration that can be coped with. In addition, the nature of the past experiences of the individual is perhaps as important a factor as any in determining how readily and successfully he can adjust. If his previous experience has resulted in marked insecurity, the smallest thwarting may assume mountainous proportions. If his conscience has become oversensitive he will constantly find himself in conflict situations that seriously interfere with his enjoyment of life.

METHODS OF REDUCING TENSIONS

As has already been mentioned, the individual does not typically remain passive when a need is thwarted or a goal blocked. His reaction usually takes the form of an attempt to discharge or reduce the tension. There are exceptions. All individuals may occasionally respond to frustration by worry or despair, which have no reductive value, and some individuals respond habitually in this manner. The following discussion will be limited to methods of tension reduction * commonly used by so-called "normal" people and will exclude typically neurotic reactions such as hysterical paralyses, hypochondria, and certain types of compulsive behavior. It should be noted in passing that most of these methods are used on occasion by "normals" or neurotics.

* Many of the methods of tension reduction are called mechanisms or dynamisms.

Methods of tension reduction, like attitudes, resist classification on a formal or theoretical basis. The classification presented here is an attempt to group together in usable form processes that have something in common. Other schemes can be found in the mental hygiene literature. We shall consider the following methods (1) attempts to reach the original goal, (2) choice between incompatible goals, (3) solution of conflicts through compromise, (4) substitution of other goals, (5) expression of aggressive impulses, (6) withdrawal, (7) use of other individuals, (8) self-deception, (9) repression and its auxiliaries, and (10) expiation.

ATTEMPTING TO REACH THE ORIGINAL GOAL

By Seeking to Remove the Barrier. The most direct response to a blocked goal is an attempt to remove the barrier. If a large rock blocks a road one wants to traverse, the first response, and usually the most sensible one, is to try to move it out of the way. If a youngster who is being tormented by a bully turns suddenly and tries to "beat up" his tormentor, he may well put an end to the bullying. Repeated onslaughts on a social barrier may result in its demolition, as is shown in the following case. A college boy who came from an undistinguished home and who joined a fraternity low in the social hierarchy was anxious to become friendly with the social leaders of the college. He found, however, that even if he was able to secure an introduction to them, the leaders responded to his subsequent greeting with a blank stare or a noncommittal "hello." Instead of withdrawing to his room and indulging in self-pity, however, he frequented the college post office which all students visited at least once a day, cordially greeted everyone with whom he wished to develop an acquaintance, and carried on a conversation whenever he had a chance. As he had a likeable personality, this simple method enabled him by his senior year to become one of the most popular students on the campus.

The behavior of Demosthenes is frequently cited as a worthy

example of direct action against a barrier of personal deficiency. As the reader may recall, Demosthenes was a Greek statesman who was unable to make public speeches because of a weak voice and minor speech defects. It is said that he practiced speaking with pebbles in his mouth and tried to strengthen his voice by shouting against the competition of the breakers on the shore of the sea. In time he became a great orator and a famous statesman.

The instances cited have been concerned with unaided individual efforts to remove the barrier; but in many circumstances in which individual efforts are futile, a joint attack with others who suffer from the same thwarting may be successful. Military and labor history afford many examples.

Whether attempting to remove the barrier is an appropriate method depends essentially upon whether it fits the realities of the situation. Its effective use implies a clear recognition of the source of the thwarting and a type of situation in which the individual's ability is sufficient for the required action. When, as often happens, an individual lacks adequate insight or ability, persistent attacks on the barrier may interfere with his long-term adjustment.

By Seeking Another Path to the Original Goal. When the barrier has been found to be immovable, the individual is likely to seek another path to the goal. This usually necessitates the development and tryout of other possibilities until a satisfactory alternate is discovered. Such attempts are of greatest usefulness in dealing with physical or social obstacles. Fisher gives a typical illustration:

Observe the activity of a boy who has sighted a large red apple in the top-most branches of a tree. The sight of the apple has aroused an urge which would find its adequate consummation in the activity of gaining possession of, and eating, the apple. But the urge is temporarily blocked by the fact of the apple's being out of reach. . . . He endeavors to climb the tree. Failing at this he finds a long stick and tries to reach the apple but again he fails. Now he tries to shake the tree and cause the apple to fall, but the tree is too heavy. Finally, he gathers some stones and succeeds in knocking the apple from the tree.¹¹

A thorough canvass of the possibilities of getting around the barrier and the tryout of those approaches which appear promising is obvious good sense. But sometimes all efforts to reach the original goal, either through attempting to remove the barrier or by seeking another path, fail, and other means are sought in a renewed effort to reduce the tension.

CHOICE BETWEEN INCOMPATIBLE GOALS

In many conflict situations, the problem consists not in devising means to remove the barrier or in discovering other paths to the goal, but in deciding between two more or less equally desirable but incompatible goals. A decision necessitates weighing the pros and cons of the alternatives and renouncing one of the goals. The young man referred to on page 635 may decide to give up his sweetheart and continue his studies for a higher degree. The boy, tempted to steal a football from the sporting goods store, after an inner struggle finally succeeds in tearing himself away from the strongly desired object. Sometimes the conflict situation must appear substantially changed to the individual before a decision can be reached. For example, an advocate of political reform was confronted with a conflict between ambition and the maintenance of his self-esteem. He wanted to be nominated for governor but in order to do so he had to make peace with the political boss of the state whom, as a reformer, he had been attacking. Before he finally decided to come to terms with the boss, he went through a long process of rationalizing * until he had convinced himself that his motives were pure, that there was no violation of his standards of integrity.

The solution of a conflict is more difficult when the urges are strong and almost equally balanced and particularly when, as usually happens, each goal involves both positive and negative elements. Choice between two goals that are almost entirely positive is usually easy and seldom entails regrets over the direction of the choice. In making difficult choices,

* For description of the process of rationalizing, see p. 669.

however, many persons find it helpful to talk the problem over with a trusted friend or counselor. The greatest aid comes more from the opportunity to clarify the situation by describing and explaining the problem than from the advice of the person consulted.

SOLUTION OF CONFLICTS BY COMPROMISE

Sometimes analysis of a conflict situation shows that it is not necessary to accept one goal and renounce the other, but that a solution enabling the individual to achieve the essential features of both goals is possible. For example, our young man might have been able to obtain a "scholarship" which would have allowed him both to marry and to continue his studies. Although he would probably have to get along on a lower standard of living than he would have preferred, the tensions of both needs would have been definitely reduced. The adolescent referred to on page 635 may talk over his problems with his parents and come to an agreement with them which would allow him somewhat more independence but not more attendant responsibility than he could manage. College students who find a conflict between sectarian religious beliefs and the teachings of science may sometimes reach a compromise solution through retaining the ethical beliefs of their sect while accepting the method and discoveries of science. It is impossible to judge how many conflicts are susceptible to compromise solutions. Whenever a conflict is faced by an individual, it is always desirable to examine the possibilities for a compromise as well as the consequences of a definite choice.

SUBSTITUTION OF OTHER GOALS

A goal has been defined as an activity or state that to some extent satisfies the individual's need or needs. The possibility of substitution depends, therefore, upon whether another goal will satisfy the thwarted need. This cannot be determined unless one is aware of the nature of the need itself. Suppose a man is planning to play tennis when it starts to

rain, so he stays indoors and plays bridge. If the goal of playing tennis was connected with the need for diversion, the substitute goal of playing bridge (assuming that it provided diversion) would discharge the original tension. If, however, playing tennis constituted a goal which was used primarily for the enhancement of his self-esteem rather than for recreation (the individual being an excellent tennis player but poor at bridge), playing bridge would not be a substitute goal and the tension would be unreduced. In many instances of vocational choice, for example, one goal is consciously substituted for another. A man who wants to become a physician but is blocked by insufficient ability substitutes the occupation of laboratory technician. Substitution may take place unconsciously, however, as in sublimation.

Sublimation as a Method of Discharging Tension.

Sublimation may be defined as the unconscious process whereby nonsexual, socially acceptable goals are substituted for sexual goals (Some authors broaden the concept to include substitutes for aggressive as well as sexual goals.) This process was widely held to be the solution for the adolescent's problem of controlling the sex urge before he was financially able to marry. For people in general, it was believed that art, scientific pursuits, and teaching children all provided satisfactory sublimations of the sexual drive. However, few people today believe that it is possible to achieve a permanent discharge of sexual tension through nonsexual activities. It should be noted in passing that Freud, the originator of the concept of sublimation, did not imply that it would provide a permanent discharge of sexual tension. He presented a much more moderate view of the efficacy of sublimation than many of the psychologists who have described the process. He said, for example: "Sublimation succeeds with the minority and with them only intermittently. The sexual instinct is characterized by special stubbornness." ¹² Recent studies have verified this conclusion. Taylor,¹³ who investigated the sexual adjustment of 40 unmarried men

between the ages of 21 and 38, found that it was not possible for them to obviate through sublimation the necessity for some form of direct sexual expression. Kirkendall, on the basis of "hundreds of conversations with young men" concerning their sexual adjustment, states "I have found not one individual who claims to have achieved this form of adjustment [sublimation]." ¹⁴

Sublimation as a Method of Reducing Tension. It is evident that nonsexual goals cannot be substituted for sexual goals to achieve complete elimination of tension. The case appears somewhat more favorable when one considers sublimation as a means of *reducing tension*. It should be stated, however, that much of our knowledge on this point is of uncertain character and should not be considered as established. If one assumes that the sex urge is closely tied up with an affectional, tender feeling (and there is reason to believe that this is true in many individuals, particularly women), then activities which allow this feeling to be expressed should serve as tension reducers. For this reason, nursing, child welfare and social work, teaching (especially of young children), religion (which frequently offers both an opportunity for expression of love and reverence for God plus welfare work with people), friendships with individuals of both sexes, and the care of pets are believed to afford some tension release. The pursuit of scientific knowledge is alleged to be, in some individuals, a sublimation of sexual curiosity. It is also possible that some forms of artistic, literary, and musical accomplishments may afford partial releases of sexual tension.

Sublimation, therefore, despite the fact that it does not offer an avenue for the complete discharge of tension, does appear to provide a degree of tension reduction for many individuals. When, in addition to sublimatory activities, that is, activities closely related to the sexual need, persons contrive to avoid situations that tend to arouse sexual desire and at the same time cultivate a wide variety of other interests, their adjustment may be markedly improved.

Compensation. Compensation is a broad concept which refers to any attempt to alleviate a feeling of inferiority. Consequently, whenever a thwarting is interpreted by an individual as due to his own personal defect or limitation and action follows which tends to restore the self-esteem, that action may be called compensatory. The development of substitute goals is one form of compensation. But a substitute goal, to be considered compensatory, must be developed *because* of the unpleasant feeling of inferiority resulting from failure to attain the original goal. The most common form of compensation is the *development of a potential strength*. The boy blocked in attaining recognition through scholastic success turns to athletics, extracurricular activities, social affairs, card playing, hobbies, or any other activity in which he thinks he has a better possibility for increasing his self-esteem and winning social approval than in the original activity. The puny boy, unable to maintain his self-esteem through physical prowess, shifts his goal to excelling in his studies.

Many compensatory goals seem to be less the development of a strength than a "*covering up*" of weakness. Among these are found *domination of others*. By entering only into activities in which he can play the dominant role, the individual, at one and the same time, directs events away from his areas of weakness and also enhances his self-esteem through bossing others. *Boasting* is another compensatory device used typically by children who strive to convince others of their superiority by magnifying their own exploits. *Assuming an attitude of superiority* is a very subtle device by which the individual implies through the manner of his behavior rather than through what he accomplishes that he is a superior person.

Showing off and clowning are attention-getting devices for concealing inferiority that are so easily recognized, especially among children, that comment is unnecessary. A response somewhat more typical of adulthood is the use of *humor* as a covering device. The individual, by treating awkward situa-

tions lightly or by making humorous remarks about a thwarting situation, may cover up his distress and even win favorable comments from his friends for being a "good sport."

The value of compensation in the adjustment of the individual depends not only upon the efficacy of the substitute goal as a tension reducer but upon the social consequences of the activity. In general, the utilization of socially approved substitute goals aids in the permanent adjustment of the individual, while such practices as domination, boasting, and showing off are likely to result in poor relations with associates. Proper guidance of children with respect to substitute goals is frequently difficult not only because of the present insufficient knowledge concerning activities which may serve as adequate substitutes but also because of the necessity for knowing the nature of the thwarted need.

AGGRESSION AS REACTION TO FRUSTRATION

Aggressive behavior was described in Chapter V as involving opposition to others coupled with a disposition to attack. Dollard *et al.* define aggression as "an act whose goal-response is injury to an organism or organism-surrogate."¹⁵ For our purpose there is no essential difference between the two descriptions. Aggression may spring from a variety of different motives and serve different functions, but in this section we are concerned only with aggressive impulses which result from a frustrated need. Much research and discussion in the past few years have led to a general acceptance of aggression as one of the possible kinds of reaction to frustration rather than an innate, internally motivated drive such as hunger. When a child is frustrated by being prevented from satisfying a certain need he may develop aggression toward the frustrating person or thing or, as Dollard comments, toward a "surrogate" or substitute for the person or thing.

Aggression Following Frustration of a Need That Is Unrelated to Self-Esteem. A child, for example, wants to go outdoors and play but is prevented from doing so by his

mother. He responds by becoming angry and striking her. A precise analysis of this little episode reveals several features.

1. The child has an urge to go out to play. Play is his present goal.

2. His mother frustrates him by preventing him from achieving his goal (play outdoors). This has the effect of producing in the child an immediate impulse to aggression, for example, to strike his mother.

3. Now the child has two tensions, that of the need to play outdoors and that of the urge to aggression. The goal which would satisfy his first need has been blocked by his mother, but the second goal, that is, to express his aggression by striking his mother, is not blocked.

4. Consequently, the child responds by striking his mother and, thereby, achieves the goal of his urge to aggression

5. Presumably this direct aggressive action satisfies the urge to aggression and has the effect of discharging all tension connected with this secondary urge.

6. The child, however, still has in full force his need (and the tension which accompanies it) to go out and play which was originally thwarted by his mother. In short, striking his mother does not solve his problem completely.

In this illustration the child was frustrated, but his self-esteem was not involved. We assumed that his urge to go out and play did not contain any elements of a desire to exercise his competence, independence, or other aspect which might be construed as self-esteem. When, however, the child's self-esteem does happen to be involved the results of aggressive action are somewhat different. The expression of aggression may, in a manner similar to the example above, discharge the tension of the urge to aggression but, in addition, it may satisfy to some extent the urge that was originally frustrated. The effect on the original urge depends on how direct and complete the aggression is and to what extent self-esteem is involved in the original urge. If the child's need in a frustrat-

ing situation is merely to restore self-esteem itself or bolster it in some fashion, his consequent aggression may satisfy that need for the moment. By this one expression of aggression, which discharges the tension associated with the urge to aggression, the child may satisfy his basic need to maintain self-esteem. For this reason, it is important in dealing with a child, to know whether the urge to do something, such as join a play group, is merely an urge to play, or whether it also involves an urge to restore or increase his self-esteem.

Aggression Following Direct Frustration of Self-Esteem.

A boy, fully dressed to go into town, pushes his sister, who is just returning from tennis, into a swimming pool. She responds by pulling him into the pool too. In this instance the girl was humiliated by being pushed into the pool and restored her wounded self-esteem by an act of revenge which "injured" him a little more than she herself was "injured." In this case the aggression expressed by the girl in all probability discharged the tension to aggression as well as the tension of the need to restore self-esteem.

Aggression Following Frustration of a Need Involving Some Degree of Self-Esteem. In many situations, however, when an individual's desires are thwarted, self-esteem is incidentally involved. There follows the usual tension to aggression after the frustration. The culminating act of aggression discharges the tension to aggression and, in this instance, reduces but does not entirely eliminate the tension of the originally frustrated need. Essentially, the aggression serves to restore the self-esteem, to eliminate the self-esteem component from the individual's remaining need. Hence the tension of the original need is reduced to the extent that self-esteem is involved. Another example will help to clarify this point. An adolescent boy has a date with a girl to take her to a dance. Although they could get to the dance by streetcar he prefers to use the family automobile because he thinks it will make a better impression on the girl. His

father refuses to let him use the car, however, saying that the boy is not a good enough driver to be trusted with it at night. The son thereupon becomes angry and humiliates his father by forcefully recalling to him an automobile accident for which the father was clearly responsible. Later the boy takes the girl to the dance on the streetcar but finds that he does not mind it as much as he expected. In this instance the boy's self-esteem was bound up with his desire to use the car, and thus was injured by his father's refusal. The release of aggression against his father, however, restored his self-esteem to such a degree that being obliged to take the girl on the streetcar no longer appeared as an important matter. The tension of the original need was somewhat reduced by the aggression.

The student of education may choose other examples from daily life which illustrate further how aggression may serve as a means of reducing the tension of the original need to the extent that self-esteem is involved in the situation. Now we must turn to the various forms of expression that the aggressive impulse, itself, may take.

Direct Aggression. Direct aggression in response to frustration has two characteristics. (1) the object of the attack is the person responsible for the thwarting; (2) the form of the aggression is unequivocally hostile in nature. The above illustrations were fairly clear-cut examples of direct aggression although the response of the girl who was pushed into the pool may well have contained in addition to aggression some elements of teasing. It is likely that direct aggression achieves the greatest degree of tension reduction and consequently yields the most immediate satisfaction to the individual.

Many factors, however, stand in the way of the employment of direct aggression. Adults are frequently restrained from the use of physical violence by the social disapproval usually connected with it as well as by their own inner standards of conduct and self-control. The consideration of the consequences of the action may also be an effective inhibition.

Often the frustrator is able to retaliate to the raised disadvantage of the assaulter; he may be in a position of authority or he may excel in strength or combative skill. There are similar barriers to the use of insults, cutting remarks, and other forms of verbal aggression. As children grow up, they become increasingly aware of these factors, aggression (as was pointed out in Chapter V) becomes less direct and more subtle.

Direct aggression, of course, is resorted to when the frustration is caused by natural events, when the frustrator is unknown, or when the cause of the frustration cannot be personalized, as in an economic depression. Some form of indirect aggression must be resorted to before aggressive tension attendant upon this kind of frustration can be reduced.

Indirect Aggression. Indirect aggression may be achieved by (1) changing the form of the aggression to one less clearly hostile in character, or by (2) changing the object of the aggression, or by (3) changing both form and object. Various degrees of disguise or concealment or hostility may be effected, as was mentioned in Chapter V, by innuendo, criticism of the frustrator's behavior or accomplishments, as well as by belittling him to others, gossiping about him, piercing his pretensions through wit, making him the butt of practical jokes, and by many other methods. Some people take advantage of games or sports involving physical contact such as boxing, wrestling, or football to vent their hostility indirectly. Children frequently use noncompliance with the requests of their parents as an indirect means of retaliation for frustration. Any competitive endeavor may be used as a vehicle for worsting one's frustrator. When disguised means are not available, or when they are afraid that the disguise may be penetrated, individuals may use fantasy of aggression as a substitute for action. As fantasies will be discussed in a later section of the chapter, no elaboration is necessary here.

Aggression is said to be displaced when it is not directed against the frustrating agent. As has been mentioned, when

the source of the frustration lies in a natural event and, consequently, direct aggression is impossible, indirect aggression may take the form of an hostile act against some substitute organism. Usually a person is substituted, but groups of individuals, persons-in-general, or even inanimate objects may serve the purpose. Occasionally aggression may be displaced by an individual identifying himself with an aggressor or by directing the aggression against his own person.

The displacement of aggression to another individual. An example of the substitution of another person for the frustrator is found in the studies of Lewin *et al.*¹⁶ In the groups in which the boys were constantly frustrated by the leader — the so-called authoritarian groups — one of the boys whose behavior toward individuals in the group differed in no way from that of the others was subjected to so much aggression that he withdrew from the club. A teacher who is reprimanded by the principal may seize on some slight violation of classroom order by a pupil to upbraid him severely; or a mother, exasperated by her husband, may, in his absence, spank her child for a very minor misdemeanor. The person who is substituted, as these illustrations show, is typically one who is not in a position to retaliate effectively.

The displacement of aggression to a group. The most clear-cut instances of aggression displaced to a group are found in the recent history of Germany. The source of the frustration of the German people may be considered largely economic, but, with the assistance of Hitler's propaganda machine, the aggressive impulses of many people were displaced onto the Jews. Occasionally one finds displacement onto people in general. Some delinquents and criminals are motivated, at least in part, by a desire to release against society aggressive impulses originating in frustrations due to personal defects. It may well be that vandalism in parks and public property as well as the annoyances and destruction accompanying Hallowe'en are displacements of aggression arising from the

unnecessarily stringent restrictions of certain adults on the activities of children and youths.

Evidence of aggression from children's play. It is said that when Sir Francis Galton was a child he would go to his bedroom and pound his pillow after being thwarted by his mother. Whether the pillow was a conscious symbol for his mother or whether it was dimly conscious or even unconscious it is impossible to say. It is likely that it was dimly conscious. That at least is an interpretation in keeping with the opinions of most play therapists who devise situations in which disturbed children can release aggressive impulses symbolically. The common arrangements involve dolls representing different members of a family. Although the arrangement of the family group reflects that of the particular child, no attempt is made to identify the dolls with the child's family. The father doll is merely called the father, and the doll representing the patient, the boy (or the girl, as the case may be). Solomon gives the following account of the behavior of an eleven-year-old boy in such a situation.

He then held the doll representing the father in one hand and the boy doll in the other. He had the father strike the boy first, then the boy struck the father. He alternated back and forth that way, with the greater amount of damage done to the father. He then beat the father doll unmercifully. The boy doll jumped on him and hit him, then he threw it all over the place. He continued doing this for about five or six minutes without let up.¹⁷

A dimly conscious identification with the doll representing the child is probably made in the play therapy situation. Although identification will be discussed later, it is pertinent to mention here that some individuals, especially children, are able to achieve a degree of tension reduction through identification with the characters in stories of the blood-and-thunder variety or through painting or drawing scenes of carnage and slaughter. Fantasied aggression provides an outlet for some, as is shown later. No examples need be given of indirect aggression, in which a change occurs in both form

and content. Suffice it to say that this happens whenever disguised or concealed aggression is used against a person other than the frustrator

The individual's awareness of his displaced aggression. The degree of awareness, as has been mentioned, plays a role in the form and object of aggression. When the aggression in response to frustration is direct, the whole operation appears to be a conscious one. With indirect aggression, it is safe to assume that full consciousness seldom exists. When a boy, struck by a larger one, in turn hits a boy smaller than himself, it is likely that the displacement is conscious; but such instances are rare. More typical are the cases cited of the displacement of aggression from the leader of the authoritarian group to one of the members, the teacher's displacement onto the pupil, and the mother's venting her wrath against her son instead of her husband. It is probable that these displacements were unconscious or, at the most, dimly conscious. Likewise, disguised aggression often occurs without full awareness. In many instances, there may even be mixed motives rather than the expression of purely aggressive feelings. This is often the case when wit or criticism is directed at the accomplishments of a frustrator.

Evaluation of Aggression as a Means of Tension Reduction. The evaluation of the usefulness of aggression as a means of tension reduction is difficult. When the self-esteem is directly frustrated discharge of tension may be obtained through aggression, most satisfactorily through direct physical violence. As we have seen, however, situations in which this means of discharge has no unpleasant consequences are limited. Usually when a boy makes a physical attack on another boy who has been bullying him his action is socially approved, but the tension will be discharged only if he wins, often a doubtful outcome. The sister, in the example cited, who retaliated against her brother for pushing her into the pool was able to discharge the tension, but she unwittingly counted on his sense of fair play and his fundamental good

relating toward her as a barrier against further aggression on his part. So too the child who struck his mother and the adolescent who criticized his father did not expect punishment for their behavior. Of course it must be admitted in the last analysis that a social order could never be built on a foundation of uninhibited aggression by all of the members.

Fite has expressed this anomalous status of aggression in saying "Impulses to aggression . . . are a source of anxiety and conflict to every human being. No one knows how to deal with them nor how they should be dealt with. No one is happy with them and no one can exist without them." According to Dollard *et al.* "When . . . aggressive responses are inhibited they constitute a permanent threat to personal integration. . . . A chronic condition of . . . tension and frustration may be induced by the complete inhibition of overt aggressive responses."¹⁹

On the brighter side it may be said that the release of aggression onto inanimate objects as Sir Francis Galton did, or through play therapy, or release of aggressive feeling through reading, painting, drawing, and the like, or through games or sports involving physical contact, or through identification or daydreaming, reduces tension and yet entails no unpleasant social consequences. Individuals seem to differ, however, in the amount of tension reduction that these means afford. Some find little value in them. Perhaps occasional direct aggression in response to frustration is helpful for personality development, but how this is to be effected remains, at the present time at least, an unanswered question.

Finally, it should be mentioned that some people find it easier to cope with their aggressive impulses when they discover that it is natural for all people to have occasional hostile feelings. John Levy, a psychiatrist — one of a profession whose members have exceptionally good control over their feelings — said: "There are moments when my best friends make me sick. I would enjoy punching them on the nose. Yes, the women, too!"²⁰

WITHDRAWAL

The primary object of withdrawal is to remove oneself from a frustrating and therefore distressing situation. The process may take many different forms and may vary in extent and in degree of permanence. Examples of fairly complete and permanent withdrawal may be found in individuals who became forest rangers, lighthouse tenders, or who take up other more or less solitary occupations as a means of isolating themselves from their fellows. Temporary but complete withdrawal is found in the classic case of Abraham Lincoln who tried to escape from an impending marriage with a politically ambitious and neurotic woman by leaving town and disappearing into the hinterland for two years. Similar behavior but not so drastic is that used by an individual who locks himself in his room and refuses to see anyone after a soul-crushing defeat.

Regression. A type of withdrawal that is of considerable concern to persons interested in mental hygiene is called regression. This is basically a method of responding to a baffling life-problem by a reversion to an earlier mode of reaction. Regression is found in its most extreme form in certain cases of schizophrenia (a common type of mental disease). Such patients have, in essence, returned to infancy, and are unable to wash, dress, feed themselves, or take care of their eliminative needs. A less severe form is found in the case of Chauncey.

Examples of regression. Chauncey's mother was very anxious to have a daughter but, unfortunately for her, gave birth to a son. She did her best, however, to make up for her disappointment by giving him an effeminate name and bringing him up as much like a girl as she could. She kept him with her at all possible times, and Chauncey came to take pleasure in household tasks and to take pride in being "mama's little helper." When Chauncey became an adolescent, he found that he was not attracted to girls as the other boys were. This

resulted in a severe, painful, and continuous conflict which he tried to resolve in many ways. In the course of time he entered medical school in the hope that medical knowledge would aid him in solving his problem. His hopes were not fulfilled and, as a last resort, he went to New York to become an actor, thinking that in the Bohemian atmosphere of the stage he might feel more at ease. He had little success in obtaining roles, and, finally, went back to the small town of his birth to spend most of his time sitting around the house or assisting his mother.

A still less severe form of regression is found in the case of Joan. Joan was a charming, well-behaved child of three years. She received a great deal of praise and attention from her parents and visitors to the home. Shortly after the birth of her brother, she not only became unruly but she reverted to wetting and soiling her bed and clothes.

Evaluation of regression as a method of adjustment. Regression serves the individual by permitting him either to escape from the necessity of having to solve baffling life-problems or to "solve" them by means which were appropriate at an earlier stage of development. Joan, for example, suffering from lack of attention, reverted to a form of infantile behavior by which she might expect to regain her accustomed amount of care and attention. Chauncey, however, had given up the struggle to solve his problems. He had essentially reverted to the stage of being "mama's little helper" and again placed himself under her protection.

In general it may be said that any form of behavior in daily life which constitutes an attempt to solve a difficult adjustment problem in an immature manner is essentially regressive. In an adult the return to the oversimplified religious beliefs of early childhood, the use of temper tantrums, lying to impress others — all may be considered regressive in character.

The effect of regressive activities upon personality growth and mental health depends upon a number of considerations. If it is used as a means of solving difficult adjustment problems

it seldom affords more than an ephemeral tension reduction. When it is used as an escape from frustration, it must be evaluated in terms of its duration. Chauncey, who regressed rather permanently to a childhood level, sacrificed the satisfactions that accompany mature efficiency and the utilization of intelligence for a kind of placid happiness. But individual who occasionally indulge in childish horseplay or who retire for a while to a protected environment may suffer no harm from their temporary retreat and may even gain some strength to continue the battle with their problems.

Daydreaming.* Daydreaming is the process of thinking or imagining through which unfulfilled wishes are gratified and blocked goals attained directly or indirectly. Three illustrations will be given.

Frances, a high school girl, went to a type of dance, under the auspices of the school, to which both boys and girls bought tickets separately. Thus she had no escort to dance with, and being rather unattractive, was not asked to dance during the whole time she was there. As she walked home, she became in fantasy the most popular and beautiful girl in the school. She had all the most attractive boys thronging around her and demanding dances. She invented their actual words and her replies to them.

James Thurber, noted for his humorous contributions to *The New Yorker* magazine, relates the following instance.

I had been travelling about the country attending dog shows. I was writing a series of pieces on these shows. Not being in the habit of carrying press cards . . . I had nothing by which to identify myself. I simply paid my way in, but at a certain dog show I determined to see if the officials in charge would give me a pass. I approached a large, heavy set man who looked somewhat like Victor McLaglen. His name was Bustard, Mr. Bustard. "You'll have to see Mr. Bustard," a ticket-taker told me. This Mr. Bustard was apparently very busy. . . . He glanced at me, saw that he outweighed me some sixty pounds, and decided to make short shrift of whatever it was I

*For a discussion of daydreams from a developmental point of view, see Chapter VI, page 205.

wanted. I explained I was writing an article about the show and would like a pass to get in "Why, that's impossible," he cried. "That's ridiculous! If I give you a pass, I'd have to give a pass to everyone who came up and asked me for a pass!" I was pretty much overwhelmed. I couldn't, as is usual in these cases, think of anything to say except "I see." Mr. Bustard delivered a brief, snarling lecture on the subject of people who expect to get into dog shows free, unless they are showing dogs, and ended with "Are you showing dogs?" "No, I am not showing any dogs," I said coldly. Mr. Bustard abruptly turned his back on me and walked away.

As soon as Mr. Bustard disappeared, I began to think of things I should have said. . . . Finely edged comebacks leaped to mind. . . . I fancied a much more successful encounter with Mr. Bustard. In this fancied encounter, I, in fact, enraged Mr. Bustard. He lunged at me, whereupon, side-stepping agilely, I led with my left and floored him with a beautiful right to the jaw. "Try that one!" I cried aloud. "Mercy!" murmured an old lady who was passing me at the moment. I began to walk more rapidly, my heart took a definite lift. Some people, in my dream, were bending over Bustard, who was out cold. "Better take him home and let the other bustards pick his bones?" I said. When I got back to the dog show I was in high fettle. . . .²¹

Smith was a salesman who had made an outstanding record. The salesmanship was open at the time, and Smith fully expected to be promoted to it. Instead, a salesman whom Smith considered in every way his inferior was given the coveted post. Smith was terribly disappointed. While sitting in his office the afternoon of the day the announcement was made, he had the following daydream. He was as tall as a twelve-story building and walked through the streets of the city evoking terror in the passers-by. Occasionally he would reach down and pick up an automobile and throw it to the ground. Again he would push over a near-by office building. He continued his destructive course until the streets were empty (and he, incidentally, felt better).

Daydreaming as a method of adjustment. Daydreams allow a person to achieve in fancy what he cannot achieve in reality. Frances wanted to be attractive and popular. She *was* in her daydream. Thurber wanted to humiliate Bustard as he had

been humiliated. He *did* in fantasy. Smith's frustration aroused strong feelings of aggression which he could not express directly. He expressed them in fantasy.

One may note certain differences in these daydreams. Frances in fantasy reaches her goal directly. Thurber does not fantasy reaching his goal (that is, getting into the dog show free) but vents his hostile feeling against his tormentor. Smith, however, does not even fantasy revenge against the new appointee or those who appointed him, but instead substitutes people-in-general as the object of his wrath. In all these instances, however, the daydreams yielded a temporary satisfaction to the dreamers.

Daydreaming can be distinguished, on the one hand, from revery, which refers to indulgence in an aimless train of ideas, and on the other from logical, realistic, directed thinking. The distinction is, however, far from clear-cut. Revery may merge into daydreaming and daydreaming into realistic thinking. Revery is more of a reaction to boredom, or monotony, or lack of interest, while daydreaming is more likely to be connected with specific frustrations.

Daydreams common among children. Types of daydreams common among children are the conquering hero, the suffering hero, and the foster child. In the conquering-hero form, the child may picture himself as a hero in battle, on the grid-iron, in the prize ring; as a great bandit, singer, or preacher; as the strongest, most admired — indeed, as the superlative in any line, even in benevolence or modesty. In the suffering-hero form, the fancies may run something like this: A boy, ruminating over his hard luck and ill treatment (as he sees them) at home, pictures himself as forced to run away from home. He imagines himself joining a group of bandits and going to the bad completely, or perhaps overwhelmed by a snowstorm or wild beasts, by which he is injured or even killed. Meanwhile, parents, teacher, some little girl, in fact the whole village has become alarmed and repentant, and after vigilant search, he is brought back a hero, even if a wounded one.

In the foster-child fantasy, the child, because of frustrations by his parents, imagines that he is not their son or daughter, but that he is really the child of important, wealthy, or prominent people. He has been adopted in infancy. This fantasy not only yields a flattering enhancement of his self-esteem but enables him to account for the "abuse" at the hands of his "foster parents." They would naturally show some resentment over a child whose endowment is superior to theirs.

Evaluation of daydreaming. Daydreaming as a device for temporary or partial wish fulfillment has both positive and negative aspects. In addition to the positive values mentioned in Chapter VI, daydreaming may aid in restoring self-confidence (as in the instance cited by Thurber), or it may lead to the formulation of a worth-while goal of conduct. On the other hand, through habitual use in all frustrating circumstances, it may lead to a withdrawal from the real world. The adult, however, may use his daydreams to learn about his unconscious or dimly conscious wishes. The discovery that he is frequently daydreaming about the same topics may reveal to him what needs in his life are not fulfilled, and it may then be possible for him to gratify them in reality.

Other Forms of Partial Withdrawal. *Avoidance or limitation of the situation* is a form of partial withdrawal. Some individuals stay away from situations in which they have met defeat or place limits upon participation therein. A youth who has been humiliated at a dance may avoid dances altogether or he may go to them but confine his activities to watching from the sidelines. The individual who has failed in a position of leadership may avoid situations in which he has anything but minor responsibility. A similar device is to *restrain emotional involvement*. One young man had had the unfortunate experience of falling in love with one girl and later with another, only to be rejected by each one in favor of more attractive rivals. In subsequent relationships with girls, he made it his practice never to go "steady" with one girl, refusing to allow a girl to "break a date" for him, and mention-

ing to each girl he went out with more than once that he had no intention of settling down. He was afraid not only that they would become too fond of him, but that he would fall in love with one of them and thus again be in a position where rejection would cause him to suffer as he had previously.

If the individual cannot avoid or limit the situation, he may be able to *postpone having to meet it* or *procrastinate*. Thus he gets temporary relief from mental stress even if it means a greater amount at a later time. Procrastination is fairly common among those with perfectionistic tendencies which are rooted in inferiority feelings. They have a strong tendency to avoid a test of strength because they are hypersensitive to failure, and failure is practically assured for those who set their level of aspiration inordinately high. One young man who was especially sensitive to failure wanted to get a scholarship in a certain university, but was dimly aware of a fear that he would not be granted it. The result was that he postponed sending in his application until the time limit had expired. This action made obtaining the scholarship unlikely, but he had provided himself with an excuse for not being awarded it. The well-known delay in getting in college term papers on the date due or at least postponing work on them until the last minute may be similarly motivated. A temporary peace of mind is attained through delay, and the individual can assure himself that an unsatisfactory mark was due to the haste in which he was forced to write.

Another common method of partial withdrawal is to *plunge into a number of activities* in order to become so fully occupied with other things that there is little time to think about a distressing frustration. Women whose dearly loved husbands have died are likely to use this device. Many return to college or university to refurbish themselves professionally. Sometimes, driven by their need to escape unwelcome thoughts, they may undertake so much work that they find themselves overburdened. The businessman who is having marital difficulty may spend long hours at the office and take on addi-

tional responsibilities in order to reduce his mental distress. A similar device is to plunge into diversions — movies, plays, night clubs, cards — in the hope of barring unwanted thoughts through absorption in these activities.

Becoming sleepy or drowsy is a well-known method of temporary escape from unwelcome tasks. Many parents have commented on the difficulty their children have in staying awake long enough to finish their homework. One parent became able to tell when her boy had done something he thought was "bad" through noticing that regardless of the time of day he would always go to sleep after such occurrences.

Alcohol for many and *drugs* for a few provide a means of escape or temporary withdrawal. Indulgence in alcohol not only makes it easy to forget the frustrations of the day but typically produces a mild euphoria. The effects of short-term overindulgence (the hangover) and of long-term overindulgence (delirium tremens) are well known. Certain drugs (opium, marihuana) are said to produce not only an amnesia but also pleasurable hallucinations. The baneful effects of these drugs are also well known. Another indulgence, that of *eating*, appears to be free from harmful aftereffects except for possible obesity or stomach upsets. The eating of sweets as a solace for painful thwarting has been found among many individuals, particularly adolescents.

Whether the forms of partial withdrawal discussed (with the exception of the use of drugs for all people and the use of alcohol for some) aid or retard permanent adjustment depends primarily upon the extent to which they are used. The tension reduction afforded by avoidance or limitation of the situation, restraining emotional involvement, procrastination, plunging into activities or diversions, and, perhaps, even becoming sleepy, may have a beneficial effect if such devices are not employed too frequently. Only when their use becomes habitual or when they are substituted for more adequate means of overcoming frustration need one be concerned with possible harmful consequences. It is unfor-

fortunate that so many people believe temporary escape or withdrawal to be incompatible with their self-esteem. If one must "face the music" all the time, one's ears are likely to suffer.

USE OF OTHER INDIVIDUALS

Identification. Perhaps the most frequently mentioned means of obtaining satisfaction through others is by identification. It may be defined as a process by which the individual allies himself emotionally, or feels himself one with, another person or a group.

Through identification an individual may (1) because of a felt lack seek to improve his personality by modeling his behavior after a person he admires, (2) seek vicarious satisfaction of blocked impulses, or (3) increase his feeling of worth or importance.

In the process of growing up, many children sense lacks in their own personalities. These are made evident to them from thwartings and the discoveries of their powerlessness in many situations. Consequently, a child is likely to copy, without full awareness of the process, the attributes of a person, usually those of an older child or an adult, who has characteristics which he himself desires. It is very common for a girl to identify herself with her mother and for a boy to identify himself with his father. In this way, the child feels a certain protection in acting the way the admired, powerful person acts. Such identification is very similar to hero worship.

Vicarious experiences through identification. Vicarious satisfaction of impulses is typically obtained through identification with characters in novels, movies, or plays. Through this process adventures may be had, desires for power gratified, and impulses that are socially disapproved may, to some extent, emerge into action. In the Bellevue Hospital ward for behavior problems, a puppet show is shown frequently. One of the characters, the monkey, is completely uninhibited and is continually violating custom and convention. The children's delight in the antics of this character in all probability stems

from their identification with the monkey and their opportunity to violate, vicariously, some irksome restrictions through him. Such identifications are of short duration, vanishing in most instances when the novel is finished, or when the movie or the play is ended. Under some circumstances, however, identification for vicarious satisfaction may be of longer duration. For instance, a mother may, because of the lack of emotional outlets in her present life or because of the thwarted nature of her own childhood, metaphorically, *live through her child*, experiencing his joys, sorrows, and desires as if they were her own. It is, of course, quite normal for mothers to participate vicariously in the lives of their children. It is only when the child, through identification, becomes the main outlet for emotional experience that there may be unfortunate results.

Self-esteem bolstered through identification. Many times identification serves the purpose of increasing a person's feeling of worth or importance. In England, it is supposedly quite common for a servant of a noble lord to identify himself with his master and assume a haughty air with tradesmen who come to the house. An identification with a school, club, or nation may serve the same end because it permits indirect praise of the individual through praise of the group to which he belongs.

Identification with a powerful person will tend to increase at least temporarily the feeling of security of the individual. Further effects upon the personality depend upon the model selected. If the person imitated has admirable character traits, the effect is wholesome. Such a person may favorably influence the ideals as well as the behavior of the individual. On the other hand, if the model is, say, a gangster, the identification may serve to strengthen tendencies toward antisocial behavior. Identification for the purpose of vicarious satisfaction of impulses may make life less drab, or afford a harmless safety valve for socially disapproved desires. Even so, when the individual identifies to increase his feeling of worth,

the value depends upon the results. If it alleviates a painful feeling of inferiority, it serves a useful function, but if it results in socially obnoxious behavior (*e.g.*, inordinate boasting about "our" school) its effects are undesirable.

Further Methods of Using Others. *Becoming dependent* upon another is a device utilized when a series of thwartings have resulted in the individual's losing confidence in himself. When this occurs he may attach himself to a supposedly stronger and wiser person from whom he seeks advice at frequent intervals and who becomes for him the bearer of the responsibility for his own actions. Some individuals, instead of relying on one person, become submissive to all their associates, and busy themselves in trying to anticipate their wishes and carrying out their requests in the hope that they in turn will be aided in attaining their own goals. The use of a confidant, a trusted friend, or counselor to whom adjustment problems as well as private feelings can be confided, should be sharply distinguished from becoming dependent or submissive. If a person is fortunate enough to have a friend with whom he can lower his defenses and who is able to maintain the necessary objective-sympathetic attitude (described in Chapter XX), a great deal of relief can usually be obtained. Not only is there a release of tension but often a helpful clarification of the problem through joint effort.

Belittling oneself is a device noted occasionally. In this case, the individual appears to depreciate his own accomplishments. This may serve the double purpose of implying that his true abilities are far higher than can be inferred from his performance and of placing his hearer in a position which calls for praise of the deprecator — altogether a neat little device for enhancing self-esteem.

None of these methods, except the use of a confidant, is likely to be an effective aid in the attainment of a permanent adjustment on the desired level of efficiency. Their constant use, in fact, may actually prevent the achievement of a permanent adjustment.

SELF-DECEPTION AND JUSTIFICATION

Rationalizing is the process of devising plausible but inadequate reasons to account for or justify an opinion, feeling, action, or situation, when the individual would find the true explanation unacceptable. Underlying all forms of rationalization is the need for maintaining self-esteem, which implies in our culture understanding the bases for our actions, and acting rationally and in consonance with standards of achievement, morality, and conventional behavior at all times. Thwarting occurs when *the individual himself or others* call into question what he does, says, or feels, or suggest that the situation in which he finds himself or the responses of others toward him reflect on his self-esteem. The individual then may reduce the unpleasant tension by rationalizing.

Individual's awareness of his rationalizing Of what aspects of the situation is he aware and unaware during or just preceding rationalizing? He is aware of the threat to his self-esteem, else there would be no call for justification. He is unaware, however, or, at most, dimly aware, of the true reasons and of the fact that he is rationalizing. The following example given by Morgan illustrates these points.

While in the hypnotic sleep the subject can be told that after he wakes, he will do a certain thing . . . For example, one subject, while in hypnosis [during a classroom demonstration] was told that when he was wakened . . . he would move to the chair which was in front of him. After being awakened he did as he had been told . . . When asked why he had changed his seat, he replied, "I thought you were through and so that was the natural thing to do" As a matter of fact, the natural thing would have been for him to take his regular seat and not the one he had been told [in hypnotic sleep] to take.²²

Thus he manufactured a reason for his behavior. One will note from this example that (1) the subject was unaware of the reason for his behavior, (2) he was aware of the threat to his self-esteem (the irrationality of taking the wrong seat), but (3) he was not aware that he was rationalizing.

The difference between rationalizing and lying. To illustrate the difference between rationalizing and lying, let us consider the following hypothetical instance. A child is late to school because he stopped on his way to watch workmen excavating the foundation for a building. When asked by the teacher his reason for being late, he says that his mother's sudden illness caused a delay of his breakfast which made it impossible for him to get to school on time. Let us suppose that the child's mother actually was sick and that breakfast was delayed (not delayed enough, however, to prevent the child's getting to school on time by walking briskly). The child's excuse, one can see, is similar to a rationalization. The child gave a plausible reason for his lateness. Actually, however, the child was aware of the true reason for his lateness and aware that he was not telling the truth. Thus his excuse was not a rationalization but a lie. The child was trying to deceive others but was not deceiving himself. Thoroughgoing rationalization always involves self-deception; the deception of others may or may not be involved.

It is not always easy, however, for a person to be sure whether he himself is rationalizing or lying, as the following instance will show. A chemistry instructor is asked out to dinner by an acquaintance for whom he has feelings vacillating between indifference and mild dislike. Since the circumstances are such that to refuse would hurt his acquaintance's feelings, he accepts the invitation. Late in the afternoon just preceding the dinner, one of the students in the chemistry laboratory causes an explosion in which he is seriously injured. The instructor gives him first aid as best he can and goes with him to the hospital. In his concern, he stays there for some time — so long, in fact, that the dinner hour comes and goes. He, of course, has forgotten about his engagement. When he sees the acquaintance the next day, he suddenly remembers the forgotten dinner and explains that the accident prevented his keeping his engagement. Later he asks himself whether he has given the true reason for his behavior. He recognizes

the fact that he really did not want to go to the dinner, that his presence in the hospital the previous evening was not helping the unfortunate student, but that, on the other hand, he had every intention of keeping the engagement until the accident occurred. He asks himself whether the accident and his subsequent conduct would have driven from his mind the thought of a dinner to which he wanted to go. He is unable to decide. It would probably be difficult for anyone in similar circumstances to be certain.

Criteria for the detection of rationalizing in others. There are some criteria, however, that help one to detect in others many instances of rationalization. The first is, obviously, the plausibility of the explanation itself. Intimate knowledge of the individual helps one in determining whether or not the reasons given are consistent with his usual behavior. Second, hesitation on the part of the suspected rationalizer before bringing forth his excuse is a possible sign, though this is likely to be characteristic of inexperienced lying also. Third, vehemence in the manner of speaking while giving the explanation and undue warmth in defending it when challenged may betray a rationalization. None of these criteria is completely dependable, however, and it is usually inadvisable to accuse a person of rationalizing. Whether or not the charge is true, he will probably be angered. Usually the process of rationalization is employed "after the event," but upon occasion an individual may attempt, by marshaling all the "good" reasons he can, to convince himself that a contemplated act is the thing he really ought to do.

The forms of rationalization are legion. We will mention but two here. In one, the "*sour grapes*" form, the individual explains shortcomings through minimizing or denying the desirability of the goal he was unable to reach. Failing to be accepted by the girl he desires to marry, he may call attention to the foolish risks people take in getting married. Having failed to win a fellowship, he may assert that the duties required would have been too onerous for him anyway. The

other is called the "*sweet lemon*" form (like the fox who could find none but sour grapes and declared they were really sweet — just the kind for which he had been searching). In this form, instead of minimizing the desirability of the goal, he calls attention to the enjoyment he finds in his present situation.

Prejudice and Logic-Tight Compartments. Systems of ideas composed of rationalizations of various types, beliefs, superstitions, prejudices, grudges, or habits developed in the course of the years often become so firmly established that they can scarcely be dislodged even in the face of substantial evidence that they are irrational, useless, or even vicious. Such acquired systems of response, impenetrable to logical attack, have been called *logic-tight compartments*. Among the milder forms of logic-tight compartments are the individual's conviction of the superiority of his town or county, his college, or himself. Several investigations have shown a very usual tendency for people, even those of high intelligence and broad training, to overestimate their abilities and virtues and, in particular, for those who are generally regarded as definitely snobbish or vulgar to be blind to the facts. It is easy to see that erroneous beliefs such as these are not motivated by fundamental desires. In various ways a person may "close his mind" to the arguments that run counter to his wants and cherish those which favor them. In the course of time, these prejudices become fixed. Through the use of logic-tight compartments, he also can keep inconsistent beliefs separate and thus escape conflict.

"Closed minds" may occur in various degrees, ranging from the slight distortion of facts required to provide a comforting explanation of failure in an examination, to the prejudice of a male clerical worker who may not himself see any relation between his fear of competition and his conviction that "woman's place is in the home," and even to the extreme type of distortion in the man who, while scrubbing the floor of the asylum, stops to tell you that he is a millionaire. While

we would call the last psychotic and the first just a "natural feeling," they are similar mechanically, differing mainly in the extent to which misinterpretation is carried. The delusion of being a millionaire represents an absolute degree of "logic-tightness" to which the term "dissociation" is often applied.

Evaluation. Rationalization is not devoid of real value to the individual. Allport asks

Why should an intelligent person invent an eyewash [that is, rationalization] for himself? Because an eye-wash, surface treatment though it is, brings immediate relief, preventing conflicts from developing through the sense of being in the wrong, and engendering a certain bravado necessary for life, and for maintaining one's rights in the face of immediate opposition. Self-deception also enables one for the time being to put off the admission of unpleasant truths until one is ready to receive them ²³

Incidentally, it acts as a countering tendency to the strong belief in this culture that each man is solely responsible for all his failures and frustrations. On the negative side, it is easy to see that frequent use of rationalizing interferes with valid solutions of real problems, and, in the form of logic-tight compartments, may keep prejudices and superstitions firmly reinforced. It is important for parents, teachers, and students of education to remember that insisting on an explanation for every instance of a child's misbehavior practically forces a rationalization. The child on many occasions simply does not understand why he acts the way he does. Accusing an individual of rationalizing is not likely to have a good effect; more probably it will result in harm. Finally, in dealing with his own tendencies to rationalize it is of value to the student of education to understand that if he questions on occasion his own explanation (as the chemistry instructor did), it, in itself, is an indication that self-deception is not unduly entrenched in his personality.

REPRESSION, PROJECTION, AND REVERSAL FORMATION

It may be said that through repression an impulse is excluded from consciousness. If that is not sufficient, it may

through projection be ascribed to the external world. Or, through reversal formation, the opposite tendency may be developed in behavior. These processes are employed to deal with strong conflicts which involve the self-esteem or moral standards of the individual.

Repression. In dealing with this topic, our analysis will follow that made by V. E. Fisher.²⁵ Repression may be defined as the unconscious process by which impulses which would be painful to consciousness are excluded from consciousness and direct motor expression. Repression must be distinguished from a similar concept, inhibition. Both involve the prevention of impulses from issuing into action, but there are important differences. In inhibition the impulse is consciously felt and consciously prevented from issuing into action. When a similar occasion arises subsequently it will be felt consciously again. In short, inhibition is a way of handling impulses for the moment.

In repression, the individual is not fully aware of the impulse or of his attempt to restrain it from issuing into action. During a similar occasion subsequently he will again be unaware, or, at the most, only dimly conscious, of the impulse. Inhibition is likely to occur where the antagonistic impulse is not very strong and when it is not especially incompatible with the self-esteem and moral standards of the individual. Being a conscious process, the individual has a certain amount of control over the manner of expression of the inhibited impulse, but he has little control over the expression of a repressed urge.

Relation of repression to neurotic symptoms. It is sometimes said that repression always results in neurotic symptoms. This, however, would appear to be true only when a *strong basic urge is completely repressed*. When this happens neurotic symp-

* The reader should understand that the existence of these Freudian mechanisms, operating unconsciously, is disputed by many psychologists, especially the idea that repressed urges may return to consciousness and motor activity in an indirect and disguised form.²⁴

toms are likely but even then not sure to follow. Let us consider, first, what happens when repression is not complete; when a basic urge (the sex urge, for example) is incompletely repressed. The urge is likely to be expressed in modified forms which are not necessarily neurotic symptoms. For example, some individuals develop an excessive interest in births, marriages, and divorces as an indirect form of expression of a partially repressed sex urge. Others may use projection or reversal formation as auxiliaries to repression, and through these means achieve a modified form of expression. Second, let us consider the repression not of an urge but of a certain desire connected with the urge (that is, one of the possible goals). For example, a man finds himself becoming very fond of his brother's wife. Before the sexual feeling becomes fully conscious, he may repress it. In this, and similar situations, nothing in particular may result from the repression. The sex urge, itself, can be expressed in other directions. Let us assume even further that a man represses his heterosexual desires; when this happens, other forms of expression such as masturbation or erotic daydreaming may be substituted.

Evaluation By repression the individual may avoid painful conflict and maintain his behavior on a level which will be morally, ethically, or socially approved. If he turns to projection or reversal formation, the consequences will depend on the particular forms they take. The disadvantage is that the individual's problem may not really be solved (assuming that it could be solved in some other way) and that the energy which, according to Freudian theory, is used in keeping the impulse repressed is thus not available for normal life goals.

Projection. Projection may be defined as ascribing to the external world (a) unacceptable impulses, thoughts, feelings, and wishes arising in the individual and (b) the responsibilities for such actions as one wishes to disclaim. An illustration is taken from Menninger.

Walter and Helen had been "going together" since their sophomore year. Things had become fairly settled. Neither one was much interested in anyone else. During the summer vacation they were widely separated. They corresponded regularly and renewed all the old vows and protestations. Apparently the summer was uneventful and they both returned to college and to each other in the fall quite unchanged.

But upon the occasion of their first "date" there was a grand row. In thinking it over afterwards neither could exactly explain it. Helen seemed determined to find some fault in Walter, she appeared to have a chip on her shoulder which she was glad to have him knock off. When he did, the storm broke. . . . [Her] chief allegation seemed to be that he no longer showed any evidence of love for her, and the only explanation of it was that he had become embroiled with some girl . . . [during the vacation] and had forgotten his loyalty to Helen.²⁶

The facts in the case were that Helen had had flirtatious desires which were in conflict with her moral standards and her feelings of loyalty to Walter. She partially repressed them and then, as a further measure of protection, projected these desires (and actions leading from them) to Walter. We need not assume that these desires were ever fully conscious to Helen, and of course neither were the processes of repression and projection.

An experimental study of projection. In an experimental study of projection made by Sears,²⁷ fraternity brothers rated themselves and others on the traits of obstinacy, orderliness, bashfulness, and stinginess. To avoid unnecessary detail, we shall consider only the results for the last trait. One of the questions with which the experimenter was concerned was: Will persons who are most stingy (as determined by the ratings of others) tend to project their stinginess into others (that is, rate others on the average higher in stinginess) more than those who are less stingy? He found that there was no such tendency. Another question investigated was: "Will persons who are stingy but who do not recognize the trait in themselves (that is, lack insight) project their stinginess into others more than those who are equally stingy but who have insight?"

He found an affirmative answer to this question. Those who lacked insight into their own stinginess rated others higher in stinginess than did the stingy individuals who had insight. Sears also found that the generous individuals who lacked insight were more inclined to attribute generosity to others than were equally generous ones who recognized their own generosity.

Common forms of projection The most common form of projection is for an individual to ascribe the blame for his own deficiencies or failure to other people or to inanimate objects. "The woman tempted me" is an age-old projection. If while groping our way across a dark room we thump our shin on a footstool (owing to our own forgetfulness), our immediate impulse and not infrequent act is to reproach the stool rather than ourselves. Missing a stroke in tennis, we look inquiringly at the racket, ball, or net. The clumsy carpenter accuses his tools. If we fail an examination, the questions were unfair. If one is a slave to alcohol, the taste was inherited from one's father.

Projection allows the individual to achieve a superficial peace of mind, and if the mechanism is not used very much and does not lead to action on the basis of the projection, there is little harm in it. If, however, it becomes a fixed habit and action is based on it, it may do serious harm. Projection of blame that should be properly ascribed to oneself could be considered a form of rationalization, but a better formulation would be rationalization through the medium of projection. Projection does, of course, afford a relief from painful conflict. It makes it unnecessary for an individual to face his deficiencies, but if the process becomes habitual, it is likely to interfere with social adjustment.

Reversal Formation. Reversal formation is the process of developing in the personality conscious attitudes and interests which are the opposite of certain partially repressed wishes or trends. Its function is to aid repression in avoiding conflict. Freud speaks of it as an erection of "barriers" or "dams."

Examples of reversal formation. A mother brought her three-year-old daughter to a medical clinic with the complaint that the child was ill. She could not give any account of specific symptoms but said the child was "not strong," "not robust," and seemed to pick up colds easily. When the child was examined, she was found to be in perfect health but appeared somewhat tense and afraid. In the course of conversation, it was found that the mother showed extreme anxiety concerning the child's welfare, bathed her and changed her clothes three times a day, would never let her play with other children for fear of contagion, and even when she played in the house made sure that the playroom and toys were perfectly clean. Sometime later it was found that the mother had not wanted to have a baby at all — it had meant giving up a position in which she had obtained a great deal of satisfaction. Only because she loved her husband very much had she gratified his strong desire for a child. Now she noticed that her husband spent a great amount of time and attention on his daughter, and she was afraid that his love for herself had cooled. The unconscious solution of her problems and a return to the very gratifying life she had led with her husband and job meant the removal of the baby. She did not recognize at the time that she hated the child, however; that feeling had been repressed, and her excessive anxiety and overprotection was the reversal formation to prevent the wish for the child's death from coming to consciousness.

Whenever one finds a socially approved trait carried to an extreme (e.g., scrupulous honesty, prudery, excessive concern for others), one may suspect immediately the existence of an opposite partially repressed trait. From the standpoint of the best adjustment of the individual, reversal formations appear to be of value if not exaggerated, harmful if excessive. Only when they are extreme is psychotherapy indicated.

Many cases involving paranoia illustrate repression, projection, and reaction formation. Hart gives the following as a typical case.

* . . . an unmarried lady of considerable age, and of blameless reputation begins to complain of the undesirable attentions to which she is subjected by some male acquaintance. She explains that the man is obviously anxious to marry her, and persistently follows her about. Finally certain trifling incidents lead her to believe that he is scheming to abduct her by force, and on the strength of this she lodges a complaint with the police. Investigation follows, and it is found that the man is not only entirely innocent of the charges levelled against him, but that he has never expressed the least interest in the lady, and is . . . hardly aware of her existence."²

In this case, the "unmarried lady" first tried to deal with her sex urge by forcing it from consciousness and motor expression (repression); that not being sufficient, she became a prude (reversal formation) and still not being able to succeed in handling the urge accused a young man of "scheming to abduct her" (projection).

EXPIATION AND ATONEMENT

Thus far we have dealt almost entirely with actions and conflicts dealing with present or contemplated behavior. The situation is somewhat altered when the behavior over which an individual is in conflict has occurred in the past. Rationalization is, of course, a common way of dealing with such situations, but at times self-deception may not succeed, nor is repression always successful. When other means fail to alleviate painful conflict over an act which is repugnant to the conscience, the individual may endeavor to find a way of atoning for it. The difficulty involved in many forms of restitution, however, is that the individual is subjected to social disapproval. Thus he seeks a way of solving the conflict without running this risk.

One student with a very deep feeling of inferiority felt so guilty for neglecting to study as hard as he should have during the previous semester that, as a penance, he fasted for a week. Others try to balance "bad" deeds with "good" deeds they would not naturally have performed in order to assuage the pangs of conscience. Still others respond to any misfortune

which comes their way with submission, believing that they are merely getting their just deserts. The value of atonement comes from the fact that it does offer a partial solution to the very difficult problem of how to reduce the tension built up through past misdeeds. To what extent it is desirable or effective, however, is impossible to say.

CONCLUDING REMARKS

As we have seen, it is difficult to assess the value or harmfulness of any particular method of tension reduction on the basis of its contribution to the long-term happiness and efficiency of the individual. The following questions may be helpful in pointing out some of the criteria that afford a partial basis for such evaluation.

1. Does the specific behavior in response to the thwarting condition adapt the individual to the objective situation?
2. Does it discharge or merely reduce tension? If it reduces it, to what extent does it do so?
3. Does it have a positive or negative effect on other people?
4. Is the method used frequently or infrequently?

Although the answers to these questions are helpful in evaluation, no fundamental judgment can be made without full knowledge concerning both the individual involved and the situation in which he finds himself.

Some reactions to thwarting described in this chapter appear to serve a broader purpose than just as a means of tension discharge or reduction in response to frustration. Aggression, as has already been pointed out, may spring from a variety of motives. Identification may be employed by the clinical psychologist as a method for understanding his client better. One interpretation of Sears's finding (discussed on page 676), that generous persons who lack insight tend to overestimate the generosity of others just as much as stingy persons without insight overestimate the stinginess of others, would be that there is a general tendency for people to perceive their own

unacknowledged traits in others. Thus not only are unacceptable traits (stinginess) "projected" but also acceptable ones (generosity). The fact that this is not the only interpretation that can be made makes the significance of the finding equivocal. It could be argued that some of the generous ones responded as they did because of an unconscious feeling that their generosity was unacceptable to them — *e.g.*, that they were "easy marks." Others might have acquired their generosity as a reversal formation for partially repressed stinginess.

Caution must be observed in the application of knowledge gained from the discussion of these methods. It is necessary to be extremely careful in inferring from the observation of behavior the need which underlies it or the possible mechanism employed. If all criticism is attributed to concealed aggression, all substitution of goals to compensation, all postponement of tasks to withdrawal, such interpretation is not only unwise but incorrect. Many of the examples given of the different methods of tension reduction might in certain circumstances be interpreted differently. In presenting the material of this chapter a certain amount of simplification, perhaps oversimplification, was employed. It may be well to keep in mind as a corrective Allport's statement, "The truth of the matter is that man's conduct at any given moment is produced by an unanalyzable emergence of many determining tendencies."²⁹

SUMMARY

Adjustment refers to the degree of harmony between the individual and his environment, and depends upon the characteristics of both. Individuals have certain organic and personality needs which they seek to satisfy. Hence they are nearly always engaged in seeking goals of one kind or another. Adjustment problems occur when a need is thwarted or a goal is blocked which heightens the tension of the need. Factors that produce adjustment problems may be grouped under the heads of (1) physical factors in the environment, (2) social

and societal factors, (3) economic factors, (4) personal defects or limitations, (5) incompatible goals, and (6) personal moral standards.

Frustration does not necessarily hinder personality development; a certain amount appears to be essential for the development of a differentiated personality. Criteria for judging the gravity of an adjustment problem are (1) the basic versus the nonbasic character of the need, (2) the duration of the frustration, (3) the number of needs thwarted, and (4) the degree to which the individual is aware of what is going on. In addition one must consider the personality structure of the individual as well as the nature of his past experiences.

Individuals respond to adjustment problems typically by attempts to discharge or reduce the tension. These may take the forms of (1) attempts to reach the original goal by seeking to remove the barrier or by seeking another path to the goal, (2) choice between incompatible goals, (3) solution of conflicts through compromise, (4) substitution of other goals which may be sublimatory or compensatory in character, (5) expression, direct or indirect, of aggressive impulses, (6) withdrawal which frequently takes the form of regression or daydreaming, (7) use of other individuals, especially through identification, (8) self-deception or rationalization, (9) repression, projection, and reversal formation, and (10) expiation. All these methods were found to yield some degree, at least, of temporary relief of distress. To what extent each one contributes to the long-term happiness and efficiency of the individual cannot be stated without full knowledge of the individual and of the situation in which he finds himself.

QUESTIONS AND EXERCISES

1. Who is the best judge of whether an individual is rationalizing, the subject himself or an observer? What circumstances make different answers to this question possible?
2. In addition to those given in the chapter, what values and disadvantages may rationalization entail?

3. What is the best thing to do when a need is thwarted? Explain why this question cannot be given a satisfactory answer
- 4 Draw up plans for
 - a A society in which thwarting from societal and economic factors would be reduced to a minimum
 - b An environment in which thwarting from physical factors would be reduced to a minimum
 How practical are your suggestions?
- 5 Give examples of thwartings which appear to benefit personality development
- 6 Criticize the use of the terms "need" and "goal" in the chapter. Can you suggest better terms or better definitions?
- 7 How many examples can you give of needs which can be fulfilled by only *one* goal?
- 8 That needs can be thwarted by an insufficient income is obvious; can the possession of an excessive income also thwart needs? If so, how?
9. From the standpoint of long-term adjustment, under what circumstances might it be advisable for an individual to (1) avoid or limit the situation, (2) restrain emotional involvement, (3) procrastinate, (4) plunge into a number of activities?
- 10 Does the fact that an individual chooses between goals necessarily imply a "free will"?
- 11 Give instances in which the use of direct aggression is socially approved. Do you think it should be approved in each case?
- 12 Thurber and the salesman both had fantasies of aggression. Assuming that the types of fantasy were characteristic of them, what similarities and differences in their personalities might you expect?
- 13 Tiegs and Katz³⁰ suggest that compensation and rationalization are *socially approved*; identification and projection, *socially tolerated*; regression, *socially criticized*; repression and fantasy (day-dreaming), *socially disapproved*. Do you agree?

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CHAPTER XIX

Mental Health Hazards of the School Child

The child's general adjustment to school may not be the result of conditions found in the school itself. Usually up to the time the child is five or six years old, the home is the principal environmental factor contributing to his adjustment, and thereafter, during his school years, he is still subject to these influences of home and community. Before he enters school, his community and, especially, his home should have provided for his organic needs and should have furnished an environment well suited to meet his needs for affection, belonging, independence, social approval, and self-esteem. While he is a pupil, both the family and the community continue to influence his personality development for weal or woe.

In this chapter, the influence of parents and family life, of the community, and of school practices upon the personality of the child will be discussed. As the title of the chapter indicates, the present concern is not with favorable but with unfavorable pressures on the "normal" child, as well as upon the child who already has an especially difficult problem of adjustment. Although it is helpful to recognize both desirable and undesirable influences, an understanding of the latter is a more important prerequisite for effective correction. The corrective techniques themselves will be taken up in the succeeding chapter.

EXTRASCHOOL INFLUENCES: THE PARENTS AND FAMILY LIFE

The Influence of Poverty on the Child's Personality. An excellent description of the effect of poverty on the personality

of the child has been made by Plant. He points out that "hardening" of the personality results from constant financial strain. He feels that "this is not a mechanism of resignation, but the development of patterns of response (or draining off) that prevent each experience of want (it matters little how drastic!) from resulting in the emotional reverberations which accompanied the first such experience."¹ This is similar to the reaction which Lewin² calls "encysting" in which the child attempts to make himself unassailable by, in effect, erecting a wall between himself and the environment.

A *feeling of insecurity* is a second resultant. Children who have suffered repeated and serious blows to their sense of adequacy from a long-continued real fear of cold and hunger are likely to show a picture of anxiety and panic. This feeling becomes so firmly bound up with the personality structure that later acquisition of a sufficient income will not remove it.

A third resultant is a *feeling of inferiority*. This may be found in children above the lowest economic levels; it occurs whenever there is a marked discrepancy between the economic status, reflected in type of home, clothes, belongings, etc., of the child and that of other children with whom he is in contact. This feeling is likely to become heightened during adolescence when material and social problems are more in the focus of a child's interest. The adolescent, however, because of his increased sensitivity, is less likely to admit the poverty of his home.

The Influence of Overcrowding on the Child's Personality. When poverty is associated with crowding, as it almost invariably is in urban communities, certain other effects on personality may be noted. (It has been said that to achieve the same degree of crowding as is found in the Harlem area of New York City, it would be necessary to pack all the rest of the population of the United States into an area the size of New York City.) Most prominent among these effects is a lack of *self-sufficiency*. It appears that children

living for years under crowded conditions — lacking privacy, with few opportunities to be alone — feel somehow incomplete and ill at ease without many others around them. They are not likely to develop a feeling of separateness or individuality, but continue in adult life to require the constant presence of others as a kind of buttress for their own personalities

From constant contact with people under many stresses, children in crowded homes tend to become *disillusioned* and *defensive*, and from constantly having their own normal desires run into conflict with those of their parents, siblings, and neighbors, they may develop a *negativism* and *irritability*.

Other Effects of Poverty. Sheviakov, who made a study of adolescents employed on part-time projects of the National Youth Administration, said of them:

Probably the most prominent characteristic . . . was the lack of self-confidence. Even the well-poised, even the unquestionably very superior and gifted youths complained about their shyness and lack of self-confidence . . . It was astounding to learn what insecure people our culture produces. It is reasonable to assume that the group studied has more insecurities — that these people are constantly threatened by the reality situation in which they face unemployment, discontinuation of WPA and NYA, cuts in the Home Relief budget, etc. Furthermore, the underprivileged youths have fewer means of bolstering their morale by decent clothes, attractive home surroundings, etc. Finally, it is a generation which grew up in families which, some six or seven years ago, had suffered a shock, families in which the self-respect of the father and the respect of the mother for her husband had suffered a painful blow. They come from homes in which humiliation is a constant boarder.³

In addition to these factors, it is obvious that in homes with poor ventilation and light, with insufficient sanitary facilities and with insufficient heat, the physical health of the family suffers. Moreover, the inadequacy of the diet is notorious. Even during so-called "prosperity," the Bureau of Home Economics of the U. S. Department of Agriculture estimated for all nonfarm families: "Sixteen million, or 74 per cent,

did not have sufficient income in 1929 to provide an adequate diet. . . . ”⁴

Perhaps it is unnecessary to point out that many children from poverty-stricken homes do not develop personalities with the characteristics indicated. The fact of the matter is that fertile soil for the growth of such traits is found in poor families and that enough of the children *do* develop such characteristics to make them common resultants of such surroundings. Of course, there is no implication that poverty is the only condition which may produce feelings of insecurity, inferiority, and the like. Symptoms of maladjustment as well as personality traits are not the products of any single set of causes. Another factor which has an important bearing on the child's personality and behavior is, of course, the parent-child relationship. We shall consider first the situation that has the greatest disintegrating effect on the personality — the rejection of the child by the parents.

PARENTS WHO REJECT THE CHILD

A child is said to be rejected when he is strongly disliked or hated by one or both parents. Children who are mildly disliked by the parent or who are loved most of the time but strongly disliked at times are not considered to be rejected; consequently the following discussion is not applicable to them.

There are still many gaps in our knowledge of rejection. We cannot distinguish as yet the supposedly different effects on the child of (1) rejection by both parents as opposed to rejection by one, (2) the sex of the rejecting parent in relation to the sex of the child, and (3) the degree of affection shown by the nonrejecting parent. There have been, however, a series of excellent studies⁵ which throw light on the problem, and we will draw freely from these in the course of our discussion.

Effect of Rejection on the Child. The pattern of behavior of the rejected child appears to be based primarily on (1) a desire to win affection or at least attention, (2) a wish to

retaliate against people for the hostility shown him by the parents, or (3) feelings of worthlessness and anxiety. However, it is not possible to attribute his behavior entirely to one or another of these categories since, for example, one form of behavior (that is, activity calculated to annoy) may be based on a desire for attention plus a wish to retaliate. It is typical of rejected children to show aggressive behavior. They are likely to *demand* gifts and special favors, to be negative, quarrelsome, rebellious, and untruthful. They are often past masters at devices which annoy adults, and are especially prone to engage in delinquent behavior. Many of them develop an apparent emotional coldness as a response to being rebuffed with the result that when kindness is shown them they respond with indifference or aggression. Deep-seated feelings of worthlessness may be expressed in a variety of forms, and anxiety may lead to what appears to be irrational behavior.

It is very difficult to diagnose rejection from the behavior of the child alone because many children who are not rejected show some of the same symptoms.

Expression of Rejection by the Parent. The signs of rejection exhibited by the parents vary from those which are obviously unequivocal to those which might possibly indicate hatred for the child. Rejection is easily diagnosed when the parent's feeling is fully conscious and when there is no attempt to conceal it, not so easily diagnosed otherwise.

Some parents will frankly acknowledge that they heartily dislike their children and wish they had never been born. The majority are not so outspoken, but express their feelings in the way they treat the child. *Getting rid of the child* is one of the most obvious signs of rejection. Desertion of the child or placement in an institution, boarding home, or boarding school (for the higher income groups) is a common device among rejecting parents. *Harsh treatment*, being very strict with the child, using severe physical punishment, are all too frequent practices. Continual nagging and criticism of the

child, pointing out his shortcomings to him and to others, being unduly suspicious of him, are all fairly sure signs of rejection. One parental practice which may mean rejection but is frequently misjudged is overprotection (see the illustration on p. 678).

Some of the more subtle methods of expressing rejection are (1) expecting the child to live up to standards that are much too high for him, (2) never saying anything favorable about the child, (3) comparing him unfavorably with siblings or children in the neighborhood, (4) responding with surprise to favorable statements made by others about the child, (5) taking conscientious care of the child's needs but with an air of martyrdom.

Origin of Rejection in the Parent. The soil from which rejection grows may be an *unsatisfactory marital adjustment*. The mother's feeling toward a disliked husband may be extended to the child. The husband may dislike the child of his unloved wife. *Interference with the sources of satisfaction* of the parents is an important cause. In homes of low economic level, the birth of a child means cutting down on necessities of life to meet its needs; on a somewhat higher level, parenthood often means giving up the possibility of further education, or drastic reduction in accustomed comforts. When the wife is employed in a job in which she takes a great deal of pleasure, childbirth means at least temporary and often permanent separation from the position.

Although many children are *unwanted* in the first place, most children unwanted at birth become well loved in a short time. Factors which tend to prolong "unwantedness" and thus bring about rejection are easily found in the families of children of forced marriages, and in homes where pregnancy occurred soon after the wedding, before the husband and wife had had time to enjoy their association *à deux*. Immature fathers and mothers who are still dependent on their own parents and who tend to take more interest in dancing, entertaining, and having a good time than in child rearing

are likely to continue to resent the presence of a son or daughter

Unattractive children are likely to be rejected. Unattractiveness need not be as obvious to an observer as lack of beauty, a malformed body, or mental deficiency. A special quality or lack of it may make the child seem unattractive to his particular parents — a boy to parents who keenly hoped for a girl, a frail child, even though charming, to parents who emphasize strength and agility, a slow child to parents who think quickness is the *summum bonum*, even minor matters such as a lack of interest in music when the parent puts a high premium on this art — these traits and others may constitute special kinds of unattractiveness

When the *child is believed to threaten the relations between the husband and wife*, for example, when one parent becomes so occupied with the child that the previous degree of affection for the spouse seems to be lacking or to be greatly reduced, the child may be rejected by the offended parent. The situation may be even more critical when a stepparent enters the home. It is normal for stepparents to feel insecure in the new role at first, but one in whom this feeling is intense and persistent may easily begin to believe that the child is preventing a happy relationship between husband and wife.

Other causes for rejection are found in the mother who has never accepted the feminine role, and who consequently cannot bear a constant reminder that she is a woman; in the father who is so suspicious of his wife's fidelity that he questions the child's paternity; in the parent who finds reflected in the child the traits of his own hated brother, sister, or parent; in the parent whose own childhood was so deprived of affection that he or she is actually unable to accept and love any child.

There should be no implication in the preceding discussion that occasional hostile feelings on the part of a parent are to be looked upon with grave suspicion. One very happy and well-adjusted mother remarked: "Yesterday I was so annoyed

with Peter that I could have cheerfully thrown him out the window." And Levy and Munroe in discussing the parents in a "happy family" say, "They all have hostile feelings as well as feelings of love for their children. They all have moments of feeling angry, irritated, annoyed with them as well as periods of feeling very tender." ⁶

PARENTS WHO OVERPROTECT THE CHILD

A child is said to be overprotected when he is excessively cared for, shielded, and loved. As very little is known about overprotection by the father, probably because he assumes the responsibility for the child's care so rarely, this discussion will deal only with the overprotective mother. Much is still unknown about the etiology and the effects of overprotection on the child, in spite of a number of excellent investigations ⁷ in this field.

Expression of Overprotection by the Mother. Overprotection may result from either domination or indulgence, or vacillation between the two. In any type of overprotection, however, the mother characteristically spends a great deal of time with the child, takes excessive care of him, and as a result succeeds in preventing the development of his independence. Specifically, she is likely to sleep with the child for years, amuse, play with, and fondle him for hours at a time. She is likely to postpone weaning, bandage every scratch, be particularly careful of his diet, call in the doctor upon the slightest excuse, and keep him too warmly clad. She prevents him from taking the slight risks children are so fond of (such as climbing trees); never lets him play with any except the "nicest" children, and even then will watch him constantly; walks to school with him even when all his classmates are going alone or with friends; and makes up his mind for him at every opportunity.

The dominating, overprotective mother tends to use forceful means in achieving her ends. She will insist on complete obedience and directly frustrate his wishes. The overindul-

gent mother characteristically gives in to the whims of the child, gives him special privileges and achieves her ends through indirection, avoiding a clash of wills with the child whenever possible.

Effects of Overprotection on the Child. Children of both dominating and overindulgent mothers often lack self-reliance. In both cases they have been, for so long, dependent on their mothers that they are unlikely to be able to assume responsibility for tasks or for minor life-problems. They continue to find their security in the presence of their mothers, in whose absence they find it difficult to cope with the world.

The personality and behavior of the "spoiled" child (the child of the indulgent mother) is likely to differ in significant ways from that of the dominated child. The "spoiled" child strives to bend the world to his demands through an aggressive, demanding type of behavior. Egocentric and selfish, he wants his own way at all times and rebels against authority and responds poorly to tasks which do not immediately appeal to his interests. Although he may appear to be self-assured, this usually conceals a hidden anxiety.

The dominated overprotected child, on the other hand, is likely to be submissive, obedient, and to withdraw from situations that he finds too difficult for him. He is likely to feel inferior and anxious and is less likely to cover up his feelings with an air of bravado than is the spoiled child. In general his behavior may be characterized as infantile, in that it appears similar to that of a much younger child.

Origin of Overprotection in the Mother. David Levy has listed the following immediate and remote factors in the etiology of overprotection:

1. Long period of anticipation and frustration during which the woman's desire for a child is thwarted by sterility, miscarriages, or death of infants.
2. Conditions in the child that make him less likely to survive than other children: physical handicaps, illnesses which frighten the mother, and the like.

- 3 Sexual incompatibility with husband
- 4 Social isolation lack of common interests between husband and wife; lack of other social contacts
- 5 Emotional impoverishment in early life unhappy childhood, particularly from the point of view of individual satisfactions
6. Development of dominating characteristics through the assumption of undue responsibility in childhood and the continuance of this role in marriage
- 7 Thwarted ambitions⁸

Researches of others have in general tended to support Levy's conclusions, although in one study little difference was found between the overprotective mothers and the "normal" controls in factors 4 and 7. An additional factor, not mentioned in Levy's list, is a feeling of guilt based on the lack of desire for a child on the part of the mother coincident with a strong desire by the father. When this feeling is followed by attempts at abortion and wishes that the child would die, overprotection on the basis of rejection may occur. It should also be noted that factors 3, 5, and 7 are also found in the etiology of rejection. It is easy to see how this can occur. One mother, for example, may reject her child because of her own resentment over her own thwarted ambitions, another may overprotect and dominate in order to make sure the child will become what she wanted to be and thus enable her to achieve her ambition vicariously through her child.

It should be emphasized that it is no small task even for intelligent and well-meaning parents to strike the right balance in determining just the proper amount of protection which the child needs. As a matter of fact, with the present state of knowledge, even if a parent had an optimally stable personality, errors of judgment would frequently be made. Fortunately, a child is not as easily molded as clay and if certain fundamental needs are reasonably well met, occasional inappropriate methods of child rearing are not more likely to wreak permanent damage to his personality than is a feather to scratch concrete. Even those parents whose lives and personalities include one or more of the etiological

factors mentioned are not fated to overprotect their children, though there is somewhat greater likelihood that they will. If they are aware of their tendency, however, they are unlikely to overprotect to a harmful extent

PARENTS WHO SHOW FAVORITISM

When a strong preference is shown by the parents for one child, the effect on both the favored and the unfavored child (for simplicity of discussion, only two-child families will be considered) is likely to be unfortunate.⁹ The favored child may reflect, though in a milder form, the characteristics of the overindulged child. The unfavored child is practically certain to show some form of jealousy. Young children often make bodily attacks on the sibling, although direct aggression against the sibling is not always shown in their behavior. Because of the feeling of injustice and lack of sufficient affection they may exhibit negativism, restlessness, fighting, and attention-demanding activities with their parents in particular but also with other adults and children. The behavior of all unfavored children does not show aggressive characteristics. Some will become despondent and withdraw. Others will throw great energy into competing with the sibling in socially approved activities, and still others will try to behave as differently as possible from their rival.

Although it would probably be ideal if parents felt and showed the exact amount of affection that each child needed, it would require paragon parents (who have not yet been born) to achieve this result. Most parents are likely to feel a preference in some degree for one child, but the effects are not likely to be serious unless a clear difference exists both in the attitude of the parents and the differential treatment of the children. As was pointed out in Chapter V favoritism is not the only cause of jealousy, and occasional feelings of sibling jealousy occur in all homes where there is more than one child.

PARENTS WHO HAVE INORDINATELY HIGH MORAL STANDARDS

Children from narrowly moral homes may be taught that sex is evil, that one thousand and one normal activities are sinful, *e g.*, smoking, card playing, going to the movies or the theater, dancing, and reading modern novels. This makes it inevitable that the child will meet numerous situations which would have been no problem for him if it had not been for his rigid moral training. The most serious result is that children who accept this teaching acquire such severe consciences that they believe they are continually failing to live a proper life. Normal social relations are almost impossible for them in an average community and, all too frequently, they develop neurotic tendencies. Those who rebel may be somewhat better off, though such rebellion seldom comes before adolescence and, for a child with such training, the consequent severing of home ties is a very painful process.

OTHER DAMAGING FAMILY CONDITIONS

The undesirable effects on personality of the rigidly moral home should not be taken to mean that the immoral home provides a better environment for the child. If the child has as patterns parents who are dissolute, delinquent, and often drunk one cannot expect the child to have admirable personality traits. If the conscience remains undeveloped, as it usually does in such a home, the result is a self-centered individual with no social feeling who is very likely to become a menace to society.

The effects of the home broken by divorce or separation are too familiar to relate. It should be remembered, however, that the insecurity is as likely to affect the child in a home where there is constant fighting, recrimination, and abuse as in a home where separation or divorce has cut the Gordian knot.

The child from the home of immigrant parents, who bring with them the culture from the land of their birth, is frequently in a difficult position when he has to adjust to the differing

standards among groups of Americans as well as to the differing standards among his associates. Conflicts as well as feelings of isolation in the individual are likely to be frequent. When to this is added the baneful effects of poverty, the interference with personality development is obvious.

FREQUENCY OF HARMFUL FAMILY CONDITIONS AND THEIR EFFECT ON THE ADULT PERSONALITY

When discussing homes in which poverty, rejection, overprotection, favoritism, and other specific conditions damaging to personality development exist, it was not possible, because of lack of data, to state how frequently each condition is found. A recent study by Bolles, Metzger, and Pitts ¹⁰ does, however, afford some indication of the frequency of homes which can be considered predominantly deleterious to personality development. These investigators interviewed 142 women psychiatric patients suffering from functional mental disorders concerning their early home background and parent-child relationships. They obtained the same information from 153 "normal" women, who were selected because they were "not under medical care for either physical or mental illness" and because they were similar to the abnormal group in socioeconomic, religious, racial, and cultural backgrounds. The results of the study are summarized in Table XVII.

Looking first at the results in Table XVII for "normal" women, let us ask, "What proportion of present-day American homes can be considered unfavorable to personality development?" If we assume that the homes dealt with in the study constitute a fairly representative sample of homes as they exist today, the figure is fifty per cent. Perhaps it would be wiser to accept the figure obtained by adding rows I and II, or eighteen per cent, as more indicative of really "bad" homes.

It should be noted, however, that despite this unfavorable early home environment, these women were considered normal. Mere absence of treatment for physical or mental disorders in the "normal" group does not necessarily mean

that no personality difficulties existed. Nevertheless it is a fair indication that no serious neurosis or psychosis was present among them. Hence we may infer that unfavorable parent-child relationships and early home background do not *necessarily* produce mental disorders.

TABLE XVII

EARLY HOME BACKGROUND OF "NORMAL" WOMEN
AND PSYCHIATRIC PATIENTS *

	<i>Normal Women, per cent</i>	<i>Psychiatric Patients, per cent</i>
I Very unfavorable home (evidence of factors conducive to marked insecurity and instability)	1	17
II Unfavorable home (evidence of some factors leading to instability and insecurity)	17	33
III Slightly unfavorable home (evidence of factors which might, under certain conditions, make for insecurity and instability)	32	25
IV Favorable home (no evidence of factors conducive to insecurity and instability)	50	25
Total	100	100

When we compare the results for the psychiatric patients with those of the normals, we find that a greater proportion (seventy-five versus fifty per cent) of the former came from unfavorable homes, and fifty versus eighteen per cent came from homes in categories I and II. The inference is that unfavorable homes, although they cannot be considered solely responsible, definitely facilitate the development of poorly adjusted personalities.

EXTRASCHOOL INFLUENCES: THE COMMUNITY

Community influences on child personality are so diverse that it is impossible to deal with them in a short space. Some variations important to children are. (1) the extent to which recreational facilities, social centers, and social agencies exist, (2) the degree of freedom allowed children by community folkways, (3) the economic level, (4) the extent of

* From Bolles, Metzger and Pitts, "Early Home Background and Personality Adjustment." ¹¹

race prejudice, (5) the extent of tolerance or intolerance of religious sects. These are only a few of many community factors which indirectly affect the development of children's personalities. Other community conditions (as well as factors in the home) are given in the excellent list of forces damaging to security feelings, self-esteem, and socialization of the child made by Maslow and Mittelmann,¹² which we shall use by way of summary for this section.

*A Sampling of Forces Damaging Primarily
the Security Feelings of the Child*

- 1 Cultural Factors
 - Subcultural conflict
 - Color, class, racial, or religious prejudice
 - Poverty
 - Chronic unemployment
- 2 Factors in Earlier Childhood:
 - Parental rejection or neglect (lack of love)
 - Parental overprotection
 - Broken families
 - Tension, quarreling, or divorce of parents
 - Parental dishonesty and insecurity
 - Identification with insecure individuals
 - Social isolation
 - Inadequate or incorrect sex education
 - Traumatic experiences
 - Unjust, inconsistent, or excessive physical punishment
- 3 Current Situational Factors:
 - Chronic conflict
 - Chronic frustration
 - Humiliations and ridicule
 - Irregularity, inconsistency, injustice, cruelty
 - Sibling rivalry

*A Sampling of Forces Damaging Primarily
the Self-Esteem of the Child*

1. Cultural Factors
 - Authoritarian family structure
 - Authoritarian education in the schools

2. Factors in Earlier Childhood.

- Dominating overprotection by the parents
- Domination by others
- Rivalry with older siblings
- Chronic invidious comparisons with others by parents
- Over-severe discipline and punishment
- Lack of praise, respect, appreciation
- Favoritism in the family
- Identification with weak individuals
- Lack of independence, long-continued dependence
- Punishment by terror or shock

3 Current Situational Factors

- Organic inferiorities
- Inadequate achievement, failure
- Feeling of difference from others
- Snobbishness or rejection by other children
- Inability to meet cultural demands for masculinity or femininity
- Over-severe ideals, feelings of sin or guilt
- Being regarded as a baby

*A Sampling of Forces Damaging Primarily
the Socialization of the Child*

1 Cultural Factors

- Social disorganization
- Subcultural loyalties
- Poverty

2 Factors in Earlier Childhood:

- Pampering, overindulgence, lack of discipline
- Direct acquisition of bad habits from others
- Lack of positive training in etiquette, manners, etc.
- Training in foreign folkways

3 Current Situational Factors:

- Identification with wrong people
- Boredom, lack of play opportunities

EFFECT OF SCHOOL PRACTICES ON CHILDREN'S
BEHAVIOR AND PERSONALITY

One day the principal of a New York City school received a letter from a boy who had recently moved into another

school district. Below is a copy of the actual letter except for changes in names.

Dear Mr White·

There comes but once in every young man's life, a favor to be asked of another man Mr White, P.S #X is where I belong, it is where I started from and built a career which is unfinished In 7B I taught geography in Mr Walker's room I was to be President of the 7th year auditorium I was made Captain of the supply room I swam for P S #X in the Junior High School meet All this I have mentioned was taken away by being transferred to another school which is farrer than P S #X

Sincerely yours,
John Kuznets

Before he had time to reply, the principal received a second letter

Dear Mr. White:

At the present time I am attending P S #Y I know you think it's a long walk from my house to P S #X, but I'm willing to sacrifice anything in order to get back to P.S #X. In my early letter I told you of the opportunities that were taken away from me My career still lies in P S #X I am in 8A and want to come back and finish the career of mine which lies in P S #X I know most of the teachers and can prove a scholarship student

Sincerely yours,
John Kuznets

P.S. Hoping for a good answer.

These letters afford a clear indication that John, and presumably the other children in P.S. #X, had a definite feeling of belonging to the school and received a great deal of satisfaction from attendance. How many schools succeed in cultivating such an atmosphere it is impossible to say, though there is every reason to believe that their number is rapidly increasing. Many rather common school practices, however, do not produce such feelings in children; in fact, they may be said to interfere with good pupil adjustment. What some of these practices are will now be discussed.

Overcompetition. The general topic of competition has already been discussed in Chapter V, so at this time we shall deal only with certain aspects conducive to excessive competition. Many authorities feel that the whole system of grades examinations, and marks tends to place an undue emphasis on competition. The result in many cases is to discourage the slow learners and even many average pupils. The relatively fast learners are likely to get inflated notions of their own abilities. Excessive competition tends to breed an indifference to the welfare of others and to enhance self-interest.

Examinations, especially long ones, when used as even a partial basis for marks in a highly competitive atmosphere are likely to cause an undue strain and fatigue in many children. The attendant strain may be increased in schools in which the results of examinations are used as the primary criterion for rating the effectiveness of the teacher without taking into account the level of ability of the class. When examinations are used primarily for diagnostic purposes — to detect areas of weakness in the children's knowledge and skill so that subsequent work may be better directed — the black marks against them are erased.

Unsuitable Curriculum. If, as too frequently occurs, the curriculum has little relation to the life problems of the children and makes no contribution to their present needs, many unfortunate effects are produced. Antagonism to the school accompanied by misbehavior may be expected, and a desire to "quit school" at the earliest legal age is likely to be born and nourished. Inquiries into the cause of delinquency have shown that some bright delinquents were first attracted to the questionable thrills of stealing as a result of their intense boredom with the curriculum of their school. Equally unfortunate is the plight of youngsters in many schools who are expected to master material beyond their ability. Prescott very aptly comments

A child who has found continuous difficulty in learning the things which he saw other children learn in school, . . . a child who ha.

been confused over and over again by the complexity of the material and energy factors met in earlier experience can hardly be expected to mobilize his knowledge and integrate his energy output into effective behavior patterns. Children need to feel adequate in capacity and skill to meet a fair proportion of the situations which they are called upon to face. They need to obtain a fair balance between success and failure in the realization of their hopes and desires.¹³

Overrestriction. Many elementary and secondary schools unduly restrict the behavior of their pupils. The ideal of many schools is pin-drop quietness and a "place for every child and every child in his place." The traditional recess periods and the occasional "working at the board" are far from sufficient for most elementary school children's need for movement and activity. In the primary school, the needs for both activity and rest are usually handled satisfactorily, but despite the difficulties adults themselves have in going for long periods without large-muscle activity, the expectation that older children and adolescents can do so is seldom challenged in practice. Pupils not only suffer from overrestriction in activity but also from lack of freedom to direct their own behavior. This factor, combined with a lack of opportunity for legitimate physical activity, usually results at least in an occasional "bursting forth" of energy disrupting to the class. The beneficial effect of permitting pupils a greater amount of self-direction was described in Chapter V. Flexible time schedules are harder for the elementary school teacher to handle and very much more difficult to arrange in high schools than are the usual rigid ones, but because of their many advantages to the pupils they are well worth the effort.

Teacher's Methods of Handling the Class. The teacher's methods of handling pupils can be considered primarily a function of his personality and his knowledge. His skill is dependent not only upon knowledge of children in general, but also upon knowledge of the individual children in his

class and knowledge of how to meet the personality needs of children and control their behavior in ways beneficial to them. There is likely to be a close relationship between the teacher's personality and the methods of control he naturally tends to use.

The personality traits pupils like and dislike in teachers were studied by Hart ¹⁴ from descriptions of the best liked and least liked teachers 3725 high school seniors had had. The best liked teachers were described as helpful in schoolwork, cheerful, friendly, interested in and understanding of pupils, patient, and fair. The least liked were said to be grouchy, nagging, sarcastic, not helpful with schoolwork, partial, unreasonable, and unfair. (Incidentally, the pupils described approximately 75 per cent of the teachers as resembling the best liked teacher more than the least liked one.)

The Effect of the Teacher's Personality on the Class. It may be surmised that the best liked teachers provided a warm, friendly, and relaxed classroom atmosphere in which the children could not only do their best work and have the most enjoyable time, but also would have opportunity for wholesome personality development. The least liked teachers probably had the opposite effect. Studies by Boynton, Dugger, and Turner and by Baxter tend to confirm these surmises. The first group of investigators ¹⁵ concluded that emotionally stable and unstable teachers tend to have associated with them pupils who tend toward the same characteristic they show. Baxter ¹⁶ found that considerateness in one teacher was met by considerateness in her pupils, that a teacher "uninhibited by routine and personal bias had pupils who were free and unhampered in thought and action." A nervous and erratic teacher had pupils who tended toward the same condition, while a teacher who was weary and disappointed in life had unanimated and listless children. Some of the results of the study by Lewin, Lippitt, and White ¹⁷ are pertinent here, too. They found as typical of their autocratic groups either hostility and aggression, or apathy. The laissez-faire groups were

typically dull, lifeless, or submissive. That these results were not due to the influence of the basic personality of the leader but rather to the "personality-as-expressed" was shown by evidence gathered during rotation of the leaders. That is, different leaders who handled a group autocratically evoked similar responses in the group, while the same leader who changed his methods from one type of treatment to another evoked behavior in the children consistent with the change in method.

Teachers' Report of Behavior Problems in the Classroom. The Wickman¹⁸ study which demonstrated that teachers tended to consider violations of classroom order, dishonesties, and immoralities as more serious than recessive and withdrawing personality traits, while the opposite was true of mental hygienists, has had wide publicity. Although this study has been criticized as being unfair to the teachers because they were asked to rate the items on the basis of their seriousness *in class*, other investigations not subject to this defect have shown substantially similar results.

One of the most interesting recent studies was made by Campbell.¹⁹ She asked New Jersey rural, village, and city school teachers in eighty-three classrooms ranging in grade from the first to the sixth to keep records of "the most important problem or problems observed each day." She also asked them to describe the treatment techniques they employed to handle the problems. Some of her results are presented in Table XVIII.

Obviously the most frequent problems as judged by the teachers are violations of rules or classroom order, clashes with the teacher, and aggression toward other children (categories I, II, and IV) — all of which could be subsumed under the first heading. These comprise 70 per cent of the problems while recessive personality traits constitute only 0.2 per cent of the total. Even though manifestations of recessive personality traits are not as frequent in the classroom as aggressive behavior, it appears that there is a strong tend-

ency for teachers to overlook the quiet child but not the annoying one.

TABLE XVIII
CLASSROOM BEHAVIOR PROBLEMS
AS REPORTED BY TEACHERS *

<i>Nature of Problem</i>	<i>Number of Times Observed</i>	<i>Percentage of Total Problems</i>
I Violation of classroom order (disturbing others, making noises, attracting attention, talking)	501	40
II Difficulties with authorities or rules (disobedience, chewing gum, passing notes, rudeness)	191	16
III Difficulties in application to work (inattention, untidiness, tardiness, lack of preparation)	272	22
IV Aggression toward other children	167	14
V Immorality	96	8
VI Withdrawing and recessive personality traits	3	0.2

The Treatment of Behavior Problems in the Classroom.

The kinds of treatment techniques used are even more revealing of the lack of appreciation of mental hygiene principles.

TABLE XIX
TREATMENT OF CLASSROOM BEHAVIOR PROBLEMS
AS REPORTED BY TEACHERS †

<i>Treatment Technique</i>	<i>Number of Times Used</i>	<i>Percentage of Times Used</i>
I. Censure (scolding, sarcasm, ridicule, threats)	1242	46
II. Extra work (kept in, required repetition, new task, replacement or repair)	248	9
III. Physical force	26	0.8
IV. Deprivation (change of seat, sent to corner or out, denied privileges)	502	19
V Ignoring	33	1
VI. Verbal appeal or reasoning	257	10
VII Reward through social approval	122	4
VIII Assistance in meeting situation	249	9
IX Reward through privilege	36	1

* From N. M. Campbell, *The Elementary School Teacher's Treatment of Classroom Behavior Problems* ²⁰

† From N. M. Campbell ²¹

ombination of categories I, II, and III from Table XIX, essentially punishment, totals 56 per cent of the techniques used. Constructive or nonpunishment techniques comprise approximately 25 per cent. Deprivation—a method of meeting the immediate situation which may or may not have efficient effects, depending upon the circumstances and type of deprivation—was employed 19 per cent of the time. Campbell comes to the following conclusions:

When treating undesirable classroom behavior of children, teachers apply direct measures as punishment or reward. Seldom, however, is the need for using indirect methods, such as changing the organization of the classroom situation to prevent the recurrence of the problem, seem to be recognized. Rarely is there evidence of the ability of an individual to determine the cause of the maladjustment through data from health examinations, psychological examinations, or from information concerning social and emotional adjustment. While the teachers may have been seeking to promote social adjustment of the child there is little evidence in the comments themselves or in the comments of the teachers concerning treatments to indicate that they sought to do anything other than to remove the disorder.

The teachers rated highly successful in classroom control use direct methods and give direct help more frequently than the other teachers. Teachers rated less successful in classroom control use punishment more frequently than the other teachers do.

A recent study of Cutts and Moseley²² is based on unsigned reports from 1000 boys and 1097 girls in the seventh grades of junior high schools. They were asked to answer two questions. "What is the last thing you did in your last school which you think you should not have done?" and "What did your teacher do about it?" Obviously no direct comparison between this and Campbell's study can be made. It is interesting to note, however, that, excluding deprivation, the boys reported various forms of punishment in about 60 per cent of the instances while the figure for the girls was only slightly less. Overtime work, physical force, and ignoring were reported

censure only one-third as much; and deprivation and verbal appeal or reasoning at about the same rate.

Improvement in Handling Behavior Problems in the Classroom. The investigations of Campbell and of Cutts and Moseley both indicate that teachers' methods of handling "undesirable classroom behavior" could be improved. It is likely, also, that a great deal of improvement could be effected through increased knowledge on the part of the teacher without a preliminary change in personality. In fact, the improved behavior of the class might rebound to the benefit of the expression of the teacher's personality.

There is no intention to imply in the preceding discussion that the average teacher is an incompetent person who is continually interfering with the adjustment of his pupils. In assessing the implications of these results, it should be kept in mind that, in the present educational situation, the teacher, if he wants to keep his job, simply has to be more concerned about order, protection of property, etc., than does the mental hygienist who is not responsible for the everyday conduct of the particular child with whom he is working, much less the conduct of a class of children. Furthermore, it is not necessarily the individual teacher whose personal behavior may affect the child for good or bad, who should attempt to effect changes alone. Not infrequently a whole administrative setup and point of view need refurbishing if the children are to realize the maximum potentialities of a good school environment.

Despite the number of handicaps under which the teacher labors, there is much evidence that he is doing a good job. The findings of Hart, already mentioned, bear out this contention. There is also some evidence that even teachers with poor personalities and methods have a less harmful effect upon the adjustment of pupils than might be surmised. After an intensive study of forty-nine children under three different teachers, Griffiths, Stimson, and Witmer²³ conclude:

Children who came from emotionally favorable homes were apparently little handicapped in their adjustment by having a

teacher who used poor methods or who was psychologically unfitted for her work, but children whose home situations were poor needed the help of a good teacher to achieve an even moderately good adjustment in school

CHILDREN WITH SPECIAL PROBLEMS OF ADJUSTMENT

The Physically Handicapped Child. Physically handicapped children because of their condition suffer more frustrations than the average child. They miss the usual play and social activities and are usually slower in their schoolwork. Besides having fewer immediate opportunities for social recognition, most of them must look forward to a vocational future that is far from satisfying. As a result of their physical condition, also, unwise parents and teachers are likely to overprotect them. It is not unusual, therefore, to find self-consciousness, sensitivity, timidity, self-pity, and a feeling of inferiority among their personality traits and withdrawal as a favored means of meeting difficult situations. Wise handling may do much for the physically handicapped child. Avoiding, in a natural manner, calling attention to his defect while at the same time arranging for special ways for him to receive merited recognition usually aid markedly in his adjustment.

The Sickly Child. The sickly child is in many respects subject to the same restrictions as the physically handicapped child. He too cannot play as vigorously or do his schoolwork as efficiently as the average child. He is likely to be considered lazy because he tires easily. Either as a reaction to the specific nature of his discomfort or because of the pampering he receives at home, he may be easily irritated. When a severe illness keeps him out of school for a considerable length of time, he is likely to be worried and tense about the work he has missed. The child who has been sickly but has since become healthy has special problems, too. Often it is harder to convince the parents than the child that he is really well. Occasionally, however, the child who has acquired the habit of nonparticipation in many play and social activities and

now feels inadequate in them is likely to continue his previous pattern of behavior.

The Child with Sensory Defects. Of the possible visual defects in childhood the most common are nearsightedness (myopia) and farsightedness (hyperopia). The effect on the personality is likely to be more serious for unsuspected hyperopics than for myopics because in addition to the inferiority feeling likely to result from repeated failures in schoolwork and in sports, farsighted children are plagued with headaches and often nausea. These conditions can make their school experiences so unpleasant that truancy may result. The child with unsuspected defective hearing is likewise handicapped in those phases of schoolwork which depend upon the auditory sense and in games and social relations with his peers. He may appear to be inattentive and stupid. The most frequent reaction to defective hearing is excessive shyness and a tendency to withdraw.

The Intellectually Gifted Child. Louttit has very aptly enumerated the most frequent sources of difficulty in the adjustment of the superior child:

1. Lack of teacher's recognition of superiority leading to an antagonism toward the school as an institution
2. Lack of parental recognition of superiority with resulting lack of stimulation or positive discouragement
3. Superiority over available associates so marked that social adjustment is extremely difficult
4. Development of poor study or work habits because of lack of stimulation of classroom work
5. Development of misdirected, narrow, or undesirable interests because of lack of guidance
6. Possible interference of sensory or motor defects with full accomplishment
7. Development of inferiority feelings because the child's interests and activities are not socially recognized by his group
8. Development of a boastful, conceited personality because of unwise emphasis by adults.
9. One-sided personality development because of lack of normal social activities resulting from parental intervention or from number three above ²⁴

The Dull Child. Dull children, sometimes called "low-normal" or "dull-normal," those with I.Q.'s roughly from 75 to 90, are confronted with unusually severe hazards in the ordinary public school. Few schools have a program and system of organization which meets their needs. Usually they are left to sink or swim (usually sink) in classes too large to be handled satisfactorily even for the average child. The difficulty of the academic work, the speed expected of him as well as the frequent inability, because of lack of facilities, to demonstrate what talents he has, constitute the major sources of frustration in the school life of the dull child. When to this, as occasionally happens, is added the antagonism of the teacher because "he brings the class achievement down" and the frequent humiliation he suffers at the hands of his classmates, it is little wonder that damaged personalities and annoying behavior result. Prescott thus describes the plight of the dull child:

Many things that he sees other children learning and doing he simply cannot learn or do. The behavior limitation set by poor capacity is a serious handicap in itself. The feelings of confusion, failure, frustration, and ineffectiveness resulting from the scorn of others who see one's failures adds another disturbing factor. Such situations can arise in the classroom, on the playground, in social situations involving the opposite sex, or in the home. "He's just dumb!" or "You've got to expect that from Charlie!" adds the final touches of humiliation. While tantrums, withdrawal, fighting, stealing, or other compensatory behavior are very poor social remedies for the feeling of failure and exclusion, they often serve to recover for the individual a sense of his own importance.

Dull children sometimes become the dupes of brighter ones with organic inferiority and take all the chances as they jointly make their protest or vent their spleen on the school or on society in general. . . . Somehow he [the dull child] must be brought to feel that socially useful work within the range of his capacities is truly significant despite the fact that it is not spectacular and does not draw the plaudits of the public. Opportunity for genuinely successful accomplishment and the judicious use of praise when it has been earned are effective methods of assisting handicapped children in the class-

The Isolated Child. In a study reported by Moreno,²⁶ public school children were asked to write the names of the boy or girl whom they would like to have sit beside them in the classroom. Both first and second choices were made. It was found that the percentage of isolated children (unchosen by their classmates) varied from fifteen to thirty-five per cent. These data indicate that an appreciable number of children in our schools are having difficulties in social adjustment. Among the underlying factors is the excessive mobility of the family. (Plant ²⁷ found that in suburban areas where there is a relatively high percentage of homeowners sixty-eight per cent of the families had moved at least once within a five-year period) When the family moves, the child's friendships are interrupted, and it is not easy to form new relationships in a neighborhood where juvenile social groupings are already pretty well set. When the child happens to be of a different race, nationality, or religion, or of lower economic status than the other children in his neighborhood and classroom he may encounter not only indifference but antipathy. The child from the broken home or from the home where he is discouraged from playing with other children may find himself isolated.

Isolated children often feel their plight keenly. They lack the status conferred by valued membership in a group and are likely to give up attempts at friendships and retire into the world of unreality. In addition, they feel that something is wrong with them, that in some way they are inferior and different from the rest of the children.

The Delinquent Child. The "typical" delinquent is a boy who lives in a deteriorating area of a city in a home of low economic level with low moral standards as well. His parents are either not living together or are antagonistic to each other. They either utilize psychologically poor methods of discipline or reject the child altogether. His I.Q. is between 80 and 90 and he is retarded in school. Delinquency, however, may be found in children in whom not one of these factors is present.

Nevertheless, the environmental mass approach to the prevention of delinquency is still the most feasible and rewarding. In one area, for example, it was found that the provision of a few playgrounds and recreational areas caused a marked drop in the delinquency rate; more thoroughgoing efforts could virtually abolish it.

The "Inferior" Child. Children with a persistent feeling of inferiority (or inferiority complex) are by no means rare in our school systems. Allport²⁸ asked 175 college men and 100 college women to report whether they had now or formerly a persistent inferiority feeling in the physical, social, intellectual, or moral spheres. Eight per cent of the men and two per cent of the women reported that they had never had an inferiority complex. Ten per cent of the men and nine per cent of the women reported an absence of the persistent feeling during the current year.

The inferiority complex stems from large discrepancies between a child's level of achievement (broadly interpreted) and his level of aspiration. Any factors which depress the first or raise the second enhance the suffering of the child. Some of the most important factors which tend primarily to lower the achievement level are: real or imagined physical defects, poor health, below average mentality, low social or economic status, or continued failure. Factors which tend primarily to raise the level of aspiration are: an emphasis on the child's inadequacy in some matter when compared with other children or his parents; intensified competition in school or sports; and insistence by parents or teachers on too high standards.

Unfortunate (from the social standpoint) reactions to persistent feelings of inferiority may be classified under two heads, the aggressive and the recessive. It is not to be expected, however, that a child will exhibit either one or the other of these types consistently; he is likely to show a recessive trend at one time and definite aggression at another time. Many of these forms of compensating activity have been discussed

in the previous chapter, so only a summary will be given here. Aggressive reactions include delinquency, bullying, domineering behavior, and annoying attention-getting devices. Recesive reactions include self-effacement, timidity, awkwardness, envy, fear of attempting new activities, perfectionism, day-dreaming, and pretended ill health. Fortunately inferiority complexes are not often deeply rooted in the personality structure during childhood and adolescence, and *one* activity in which the individual can excel and win recognition is likely to alleviate the "gnawing feeling" (to use Allport's phrase) markedly.

The Adolescent Child. Although the adolescent child may not deviate or be handicapped as seriously as the children previously discussed, nevertheless, in the present social situation, adolescence brings with it special difficulties of adjustment. Many problems spring from the lack of stability in the status of the adolescent in our society; he is in a twilight zone between childhood and adulthood — consequently most older persons treat him at times like a child and at times like an adult. Consistent treatment as a child, however, constitutes just as serious a barrier to adjustment. It generally results in a series of conflicts, particularly with the parents, over the restrictions to his growing needs for self-direction and independence.

Physical changes taking place during this period are likely to lead most adolescents into feeling that there is something wrong with their bodies, and they are likely to combine an acute awareness of their bodies with a sense of shame. Retardation in the growth of male characteristics in ninth grade boys was found to produce marked feelings of insecurity in eight out of ten, and of those with a tendency toward the female habitus, all seven were seriously disturbed.²⁹ Many girls are bewildered and frightened at the time of menarche. Even acne which may appear in adolescents of either sex is likely to be considered an embarrassing barrier to social relationships. In many boys the shame is intensified because

of the common belief at that age that pimples are a sign of masturbation.

Sexual problems, especially the achievement of heterosexuality, are likely to plague the adolescent. The sex urge is at its peak of intensity during later adolescence, yet no socially approved and available outlet exists. Masturbation, the most frequently used mechanism, almost always causes painful conflict. Many of the frustrations of youth are rooted in the economic structure and in the beliefs of the culture. For most adolescent boys, a job is the only means of achieving independence, reaching the much-desired adult status, becoming able to marry, and achieving a real feeling of worth and stability. Certainly, in our culture no adequate provision is made for these basic needs of the adolescent.

SUMMARY

1 In the home, the school, and the community may be found the main influences which either reduce or intensify the effect of weaknesses already in the organism, or tend to create maladjustment in the child with a sound genetic structure. If the child's needs are met in the home and in the community; if he receives adequate nutrition, optimal affection, suitable training, and an opportunity for developing independence from parents whose personalities are unwarped and whose relation with each other is harmonious; if he lives in a community in which play facilities, tolerance, and other children of his age are found; he will probably come to the school with an integrated personality.

If, on the other hand, he comes from a poverty-stricken, overprotecting, rejecting home, or one where he is discriminated against or where hypermorality or immorality exist; or from a broken or breaking home, or one in which the family standards deviate markedly from the others in the community, he will often bring to the school a personality already in need of aid.

2. One may infer that, on the average, less than one child

in five comes to school from a "bad" home in which there are important factors leading to instability and insecurity; and approximately one child in three comes from a home which might, under certain conditions, produce the same results.

3. The school then has the responsibility of providing a hygienic, friendly environment with understanding teachers; of aiding the continuation of sound personality growth in well-adjusted children; and of assisting the children whose personalities are already warped. Overcompetition, unsuitable curriculum, overrestriction, and poor methods of handling children are some of the factors which tend to retard personality development in any child.

4. Psychologists and psychiatrists have long understood that misbehavior as well as normal behavior consists primarily in seeking goals which remove or reduce the tension produced by needs. Viewed from the standpoint of society, misbehavior is the result of an unfortunate combination of factors including the child's genetic structure, the nature of his previous environment, and the character of his present situation.

QUESTIONS AND EXERCISES

1. An elementary school teacher said, "If every child in my class is not well adjusted at the end of the term, I am a failure as a teacher." What are your reasons for disagreeing with this teacher?
2. How many children in the United States come from poverty-stricken homes? What are some of the factors which tend to prevent children from such homes from developing the undesirable characteristics mentioned in the chapter?
3. Can one tell from the type of behavior which a child exhibits whether he is rejected by his parents? Why not?
4. Distinguish between the immediate and remote factors in the etiology of overprotection listed on page 695. Does the presence of any one of these factors produce overprotection?
5. Are the inferences drawn from the results of Bolles, Metzger, and Pitts (on page 699) justified? How might the extreme environmentalist or the extreme hereditarian interpret these results?

6. Compare the section on competition on page 148 with the discussion of overcompetition in this chapter. Under what circumstances may competition be beneficial or harmful?
7. "All that is needed to clear up the problem of poor methods of handling children in the classroom is to arrange for a lecture course on proper methods." Criticize this statement. What would you suggest?
8. From the discussion of sources of difficulty in the adjustment of the intellectually gifted child, would you draw the inference that superior children are likely to be more maladjusted than the average child? What evidence can you adduce to the contrary?
9. What influences in the life of some solitary children might tend to negate or at least partially overcome the feelings of isolation they are likely to have?
10. Persistent feelings of inferiority are so common that nothing need be done about them. Do you agree with this statement? Explain

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CHAPTER XX

Guidance of the Individual Child

"Understanding the child" is constantly stressed in modern educational circles, and quite rightly, for without it no sound guidance of the child is possible. Of course, the complete understanding of any human being is beyond the capabilities of even the wisest expert in human relationships, but it is well within the realm of possibility for the alert teacher to increase markedly his understanding of each pupil through the use of current techniques. It is the purpose of this chapter to describe and evaluate the methods commonly employed by teachers and specialists to develop an understanding of the school child and, in a later section, to indicate the role of the teacher in guiding the child's adjustment and readjustment. No attempt will be made to outline a complete guidance program, but various procedures and devices will be suggested to aid the teacher in his study and guidance of the child.

THE ADJUSTMENT SCHEDULES

Adjustment schedules are frequently called self-report blanks, adjustment questionnaires, or inventories. It is impossible to differentiate them clearly from "tests" designed to measure such personality traits as introversion, self-confidence, etc., since most, if not all, aspects of personality are related to adjustment. The purpose of adjustment schedules is to estimate an individual's degree of adjustment or maladjustment. In their preparation, a series of questions designed to reveal attitudes, feelings, and behavior indicative of maladjustment is gathered, attempts are made to validate them, and

they are administered to a representative group of individuals. From the responses of this group, norms are established. Thus, when the schedule is subsequently administered to an individual, the degree of maladjustment indicated by his answers can be compared with those of the original group. The most common way of expressing his standing is through the use of percentiles, *e.g.*, John Smith is found to be more maladjusted than — per cent of high school boys, Jane Doe is found to be more maladjusted than — per cent of college women.

There is considerable controversy over the value of adjustment schedules. One can find opinions of authorities ranging from complete repudiation to enthusiastic acceptance. The preponderant opinion, however, tends to be somewhat skeptical. Many of the criticisms are technical¹ rather than practical in character, and although there is much overlapping between the two types of criticism, they are not identical. In a practical situation, it may be useful to employ a fairly adequate instrument for the aid it does furnish despite the fact that it has definite limitations.

Uses of the Adjustment Schedule. Before describing some representative adjustment schedules, it will be well to mention some of the reasons why such instruments at the present time do not afford a conclusive assessment of an individual's degree of maladjustment.

1. *It is difficult to formulate diagnostic questions which are understood by all and have the same meaning for all.* Eisenberg,² after administering to 219 college students the Clark Revision of the Thurstone Personality Schedule, asked them to explain what each question meant to them. For the question, "Do you get stage fright?" which, like the others, is answered by circling a "Yes," a "No," or a "?," the following results were obtained. Of the 219 subjects, fifty-six explained that they got stage fright only in large or strange groups, yet thirty-two answered "Yes," seven "No," and seventeen "?." Twenty-six other subjects said they were nervous at first only, but of these eight answered "Yes," ten "No," and eight "?." To the remainder of the

group, 137 subjects, the question was unequivocal. Thus, in general, the question was a good one, but in a fairly large proportion of the cases the meaning was not interpreted in the same way. The probability of lack of understanding or misinterpretation is increased when a question refers to an experience which the individual has not had. For example, a high school freshman who has had a minimum of social experience might well find it difficult to answer the question appearing in an adjustment schedule for high school and college students, "At a reception or tea, do you feel reluctant to meet the most important person present?" The same freshman might also find it hard to answer the question, "Does admiration gratify you more than achievement?" merely because he had not observed himself and his feelings sufficiently.

It is clear that, with some individuals, such factors tend to affect the significance of the results of adjustment schedules. Nevertheless, their practical value, though impaired, is not thereby destroyed. If all or a large proportion of the questions were ambiguous, difficult to understand, or called for an unusual degree of self-observation, it would make the value of such instruments very questionable. Fortunately the items contained in the most representative and widely used of the current adjustment schedules are predominantly clear and serviceable.

2. *It is impossible through the use of schedules which limit answers to "Yes," "No," and "?" or their equivalents to take account of intensity or acuteness of a symptom.* If it be true that, as Strang says, "An extreme deviation from the normal on one item would indicate a more serious maladjustment than a mild degree of deviation on a fairly large number of items,"³ certain individuals would be incorrectly placed on the adjustment-maladjustment continuum by the inventory. At the present time, however, there is no conclusive evidence that maladjusted individuals express their maladjustment through one acute symptom. Usually such an individual has many areas of poor adjustment. Therefore, while it would be advantageous

to have a measure of intensity to distinguish between individuals who make the same number of "unfavorable answers" but who differ in the acuteness of their feelings, this lack does not appear to impair seriously the usefulness of the instrument.

3 *It is difficult to validate an adjustment schedule.* The validity of an adjustment schedule can be enhanced by a careful selection of the original series of questions. Further steps in validation frequently consist in presenting the questions to contrasting groups (e g., a maladjusted and a well-adjusted group) and discarding questions that do not reveal a clear differentiation between the two. The use of contrasting groups as a criterion, however, presupposes a valid method for the selection of these groups. So far it has been necessary to select on the basis of fallible human judgment.

Despite the uncertain validity of adjustment schedules, evidence from a number of studies indicates that, in general, high scores, that is, the scores of individuals who answer the questions in a predominantly maladjusted direction, are indicative of poorly adjusted personalities. But the fact that a low score does not necessarily indicate a well-adjusted personality constitutes a limitation which must be taken into account.

4. *It is difficult to construct schedules with sufficiently high reliabilities for use with individuals.* As was pointed out in Chapter VII, perfect reliability would be indicated by a coefficient of 1.00. Well-constructed adjustment schedules have reliability coefficients ranging from about .80 to .93. Thus, although they compare favorably with many widely used group intelligence and achievement tests and can be called fairly reliable, they do not always come up to the level of .90 suggested by some authorities as the necessary minimum reliability for an instrument used to differentiate individuals.

5. *All adjustment schedules must rely on frankness on the part of the subject.* It is easy to "fake" answers, and there is an easily understandable reluctance on the part of many individuals to reveal unfavorable aspects of their personalities. A number

of studies have shown that signed and unsigned adjustment schedules yield somewhat different results. The degree of frankness with which adjustment schedules are answered depends in part upon the schedule itself. The phrasing of questions in such a way as to afford the individual a degree of justification for his "unfavorable" response may encourage frankness. The California Test of Personality avoids asking, "Do you play truant?" but gets at the same item through the question, "Are things frequently so bad at school you just naturally stay away?" Perhaps the most important influence on frankness lies in the relationship between the administrator of the schedule and the pupils. The pupils must have confidence in, and a friendly feeling toward, the examiner, whether teacher or psychologist. They must feel sure that their completed blanks will be kept from curious eyes and that their answers will not be used against them in any way. It is, of course, unwise to use such schedules when there is an advantage to be gained from appearing to be better adjusted than one is. Thus they should not be used as a basis for admission to an educational institution or as ratings for privileges, promotions, or jobs.

Summary. Despite all the limitations of adjustment schedules, they still have a definite value in aiding one's understanding of the pupil. Before reaching a conclusion about an individual's adjustment, however, it is well to compare the results with all other evidence available concerning him. The ways in which adjustment schedules are useful in school situations may be summarized as follows

1. For identifying some of the pupils needing special aid in adjustment. Those who need help but cannot bring themselves to answer the questions frankly will, of course, have to be located through some other means.

2. For uncovering unsuspected personal problems through noting a pupil's answers to the specific questions. The existence of such problems must, of course, be verified through other techniques.

3. For discovering clues to the basis of the adjustment difficulty by means of a thorough analysis of the answers.

4. For confirming a suspected maladjustment of a pupil when other evidence yields inconclusive data.

Adjustment Schedules for College Students. Among the adjustment schedules at the college level, the most widely used is the Bernreuter Personality Inventory. In addition to a measure of adjustment, called "neurotic tendency," it is also designed to yield scores purported to be measures of dominance, self-sufficiency, self-confidence, and sociability. It consists of 125 items of which the following are samples:

- Yes No ? Are you easily moved to tears?
- Yes No ? Are you touchy on various subjects?
- Yes No ? Do you consider yourself a rather nervous person?
- Yes No ? Are you slow in making decisions?

Bernreuter reports reliability coefficients for "neurotic tendency" of .91 and .88 for two classes of college students; coefficients for the other traits range from .85 to .92. The instrument may be scored by hand or by machine. Hand scoring is somewhat difficult without the use of a mechanical counter.

Adjustment Schedules for High School Students. At the high school level, grades nine to twelve, The Bell Adjustment Inventory, Student Form, is one of the most widely used instruments. It is designed to provide measures of adjustment in four areas. (a) home, (b) health, (c) social, and (d) emotional. There are forty items in each area, of which the following are samples. The letter preceding the question indicates its classification.

- a Yes No ? Have the actions of either of your parents aroused a feeling of great fear in you at times?
- b. Yes No ? Do you frequently experience nausea, or vomiting, or diarrhea?
- c. Yes No ? Are you sometimes the leader at a social affair?
- d. Yes No ? Are your feelings easily hurt?

Only questions which differentiated between well-adjusted individuals and those selected by counselors as being poorly

adjusted in the different areas were retained in the published inventory. Coefficients of reliability range from .80 to .89 for the separate areas; for the total score the reliability is .90. Scoring is relatively easy.

Adjustment Schedules for Elementary School Pupils

On the elementary level, it is advisable to be even more cautious in interpreting the scores of adjustment schedule than on the levels of secondary school and college. Representative inventories for the elementary school child are Character Sketches and the California Test of Personality Character Sketches, devised by J. B. Maller, consists of 20 items which yield scores for habit pattern, self-control, social adjustment, personal adjustment, mental health, and readiness to confide, as well as a total score. There is also an unscored section called "background" with a few questions on the family, home, fears, worries, and wishes. The reliabilities of the different traits range from .90 to .97. It may be used in any grade above the fourth. The pupil is asked to indicate whether he is the same or different from the person described by each item. A few of the items taken at random from the schedule are listed.

Quarrels over games, thinks only of self

Does not get tired quickly of work in which he is interested

Does not become upset easily

The California Test of Personality, Elementary Series, may be used in grades four to nine inclusive. It is divided into two parts, self-adjustment and social adjustment, and each part is subdivided into six sections of twelve items each. The authors, Tieg, Clarke, and Thorpe, report reliabilities of the separate sections as ranging from .60 to .87, which make the interpretation of some of the sections of doubtful significance. The coefficients for self-adjustment and for social adjustment are relatively high, however, being reported as .90; the reliability for "total adjustment" is .93. Some of the items of which the test is composed follow.

Is it easy for you to recite in class?
 May you usually choose your own friends?
 Do you often meet people who are so mean you hate them?
 Do you bite your finger nails often?

PROJECTIVE TECHNIQUES

There are other instruments which are more revealing of personality than the inventory type because they yield a more comprehensive picture of the individual's "private world" of subjective meanings and feelings, and because, being concealed approaches, they are subject to little or no faking. Among such instruments is the Rorschach test, which consists of a series of ten ink-blot patterns which are presented to the individual with the questions, "What do you see? What can this be?" Another has the somewhat ponderous title, The Morgan-Murray Thematic Apperception Test. This consists of a series of twenty pictures depicting dramatic events, each picture containing one person with whom the subject can identify himself. The subject is told that it is a test of creative imagination. He is asked to make up a story for which the picture could be used as an illustration and to tell the relations of the people in the picture, what their thoughts and feelings are, what has happened in the past, and what will happen in the future. Later the subject is asked whether his story was derived from something seen, read, or experienced. It is doubtful that such instruments will be widely used in schools, since not only must they be individually administered but a background of extensive clinical experience is required to interpret them properly. Projective techniques such as these are thought by many psychologists to offer one of the most fruitful approaches to the dynamics of personality.

METHODS OF OBSERVATION

Advantages of Observation. Observation has certain advantages over the personality test as an approach to understanding children from the practical standpoint. Even hit or

miss incidental observation gives one a "feeling" for the child's personality that the score or even the responses to the individual items cannot give. Observation in a relatively "free" situation — one in which the pupil feels the absence of adult pressure — may reveal important aspects of the personality. (This possibility vanishes, however, when the pupil knows he is under observation) Then, too, observing does not interfere with the usual school activities as testing does. Finally, one can actually see how the child responds in social situations, and note how he reacts to frustration.

Limitations of Observation. Unfortunately there are many difficulties inherent in the process of observation. In addition to the fact that observation is a highly skilled technique, it is almost impossible for most teachers to spend enough time in observing to enable them to get a well-rounded picture of the child's personality-in-action. Errors of interpretation are surprisingly easy to make. If the setting is not judged properly, or if the observer has no other knowledge of the child, misinterpretation of the meaning of his behavior is frequent. Bias, of course, on the part of the observer will vitiate the results. In many situations, too, the child, particularly the older child or adolescent, will "cover up" so as to conceal his true feelings. Finally, the same behavior at different times may not have the same subjective meaning to the child.

Methods of Improving Observation. Observation may be improved by keeping careful records of the behavior, preferably writing the observation down at the time or, if that cannot be done, as soon afterward as possible. It is important to pay particular attention to the setting and, if that is vague or equivocal, to forbear from recording the observation. It is also helpful to record separately the direct observation and the inference drawn from it; this makes possible a check by another person on the validity of the interpretation. Simultaneous observation with another capable person and comparison of records afterward is a good method of improving the quality and accuracy of one's own work.

For spotting children who need special aid in personality development or for noting possible changes in behavior over a period of months, observation of groups may be used. In this way, also, the effect of a change in curriculum or in the program of the school can be assessed. Meaningful observation of a group of thirty or forty children is very difficult to make; thus some method of reducing the number under observation at any one time or the types of behavior to which attention is to be directed, or both, is often employed. The most successful device, as has been mentioned in an earlier chapter, is to limit one's observation to one pupil at a time, spending five to ten minutes on each. If the units of observation are shorter, highly reliable but unimportant observations are likely to be the result. If one decides to limit the type of behavior to, say, extent of social participation at a school party, small groups may be observed in sequence. The anecdotal record or check-lists prepared in advance may be employed.

The Diary Record Method. Detailed observation of one child is usually for the purpose of comparison with other data already at hand, and to determine the kinds of situations in which he has difficulty. For this purpose a running diary account of the pupil's behavior is usually the most desirable. One should be careful to observe the child for a reasonable length of time and in a variety of situations. The elementary school child may be watched in class, on the playground, in the halls of the school, on the way home, and if possible in the home; the secondary pupil in the home-room, in various classes, during examinations, in the study hall or library, at a club meeting, in a school dance, in the school cafeteria, and in games or sports with his peers.

INTERVIEWING PARENTS

Value of Information from Parents. From the standpoint of diagnosis, there are two immediate reasons why parents should be seen by the elementary school teacher: to gather

sufficient knowledge about a child to provide him with the most suitable educational experience, and to obtain additional insight into the causes of the behavior of the child who already has difficulties in adjustment. The same two reasons apply to the secondary school teacher as well, although the problem of contacts with the parents of adolescents is complicated by the implied reflection on his feeling of personal worth. Information for the first of these purposes may sometimes be obtained through a questionnaire plus short contacts after school affairs or parent-teacher meetings. Although home visits are usually desirable, in most communities teachers do not have time to visit the homes of many of their pupils.

Suggestions for Conducting Interviews. When the child has shown difficulties in adjustment, it is usually advisable for interviews to be held with at least one of the parents and preferably both. This is frequently difficult to arrange, in view of the many duties of the teacher and parent, but it usually can be effected by some sacrifice on the part of both. The conference will be facilitated or hindered by the general attitude on the part of the parents toward the school, and by the community's conception of the role of the teacher. If the parents have a negative attitude toward the school and if there is a common belief that the teacher's function is that of drilling on the three R's, the teacher's first job will be to establish a friendly attitude before further progress can be made. The teacher should also be alert to differences in cultural background between himself and the parent, to speak in laymen's language and yet avoid "talking down." He must appreciate that many parents resent an inquiry into their personal affairs, and, in dealing with the parents of problem children, should expect to find many who will be quick to interpret innocent comments as imputing blame to them. He should be sensitive to a possible feeling of rivalry on the mother's part, for the teacher is often the first adult outside the family circle to have an appreciable influence on the child. Often, too, the parents feel that the school situation

is the sole cause of the problem behavior and that they themselves have no responsibility in the matter. It is particularly important for the teacher to convince the parent that confidences will be conscientiously respected.

Before interviewing the parent of a "troubled" adolescent, his permission should be asked in order to safeguard his status as a maturing individual. In the case of a refusal, the teacher should weigh the probable values of opposing his wishes against the possibility of gaining sufficient insight from the parents to help him. If he decides that a parental contact is imperative, he should explain the reasons for his decision to the adolescent and also indicate the general course of the inquiry he plans to follow. When the parental contact is made, the teacher must be careful not to betray confidential information the adolescent has given him. Except in extremely serious cases, revealing such information is not necessary. If the teacher finds that, for any reason, he is not progressing with the parents of a child who is definitely disturbed, he should immediately seek the advice of the school psychological counselor. Where there is none, the services of the community child guidance clinic should be utilized.

CONFERENCES WITH THE PUPIL

The teacher may confer with the adjusted child for the purpose of getting to know him better; the troubled pupil may be interviewed in the hope that some light may be shed on the origin of his difficulty. In either case, though especially in the latter, the teacher should maintain a sympathetic-objective attitude toward the pupil. That is, he should try to appreciate the problems from the child's point of view but at the same time prevent himself from being so overwhelmed by sympathy that he adopts the child's attitudes. This process of feeling himself into the child (called empathy by some, identification by others) must be controlled and conscious to be of value. Some teachers become so emotionally involved in the child's plight (from hearing his account of it) that they

adopt his attitudes toward others without realizing it, and develop such strong feelings of resentment toward the parents that they are unable to deal objectively with them. In interviewing troubled pupils, the teacher must keep in mind that confidences must be respected, take what steps he can to reduce the constraint inherent in his position of authority, and keep his own problems out of the picture.

INTEREST INVENTORIES AND ANALYSES

An interest inventory may aid the teacher in understanding the child, and, on occasion, having a child fill out a schedule of his activities each day for a week may afford some insight into the character of the life he leads. After rapport has been established with a pupil, the writing of an autobiography sometimes affords very significant information not only on formative events in the child's life but on important attitudes he holds. In the upper elementary school and in the secondary school, an analysis of the student's themes or essays may be revealing of the pupil's personality, if made by a teacher with unusual insight into human motivation and behavior.

THE CUMULATIVE RECORD

The cumulative record which was described in Chapter XVII is a means of keeping readily available pertinent data about a child. These data in themselves are likely to aid the teacher in appraising the child's assets and liabilities. The record can also serve as a source of new knowledge if an analysis of the meaningful relationships among the different items is made. An especially complete record card includes spaces for the following: (1) tests — intelligence and standardized achievement; (2) marks — elementary and high school; (3) home — occupation and nationality of parents, names and ages of siblings, language spoken; (4) health — medical examination, physical development, defects, and treatment; (5) prolonged absences, with causes;

(6) personality — short descriptions by teachers, (7) vocation — educational aim, vocational aims, special interests, outside employment, school activities, (8) records of conferences with pupil — important attitudes, remarks, decisions.

One can easily see how such a record would provide a valuable basis for guidance of the student in selecting courses, curricula, advanced education, and a vocational career. It would be useful in understanding the maladjusted pupil chiefly as a source of clues for further inquiry. Obviously such a brief compilation of more or less objective data cannot include the type of information needed to understand the sources of and dynamic factors in most pupil maladjustments. Reasons for this will be clearer after the case study is described.

THE CASE STUDY

The case study is the most comprehensive of all methods of special inquiry for use with maladjusted children or with those who exhibit unusual but undeveloped abilities. Such a study is often made by a specialist though teachers are finding an increasing need to use this device in the course of their professional work. In accordance with the discussion in Chapter XVII the case study is employed in a variety of situations. It is an attempt to synthesize and interpret the material gathered by all other techniques for the purpose of making an inclusive picture of the individual and of the background factors affecting his life.

Items to Include in a Case Study. Although the amount and kind of information in any one area varies greatly in accordance with its relevance to the particular individual studied, the adequate case study will, with certain exceptions, include information in the nine areas listed below. In accordance with Allport's suggestion that "successful case studies seem naturally to fall into three sections: (a) a description of the present status, (b) an account of past influences and successive stages of development, and (c) an indication of future trends,"⁴ the topics have been arranged in that fashion.

<i>Present</i>	<i>Past</i>	<i>Future</i>
1. Problem	History of problem	
2. Educational status	Educational history	Educational plans
3. Intellectual status	Intellectual development	Prediction of ultimate level
4. Health and physical status	Health and physical history	Prediction of future health
5. Maturity level	Developmental history	
6. Personality	Personality development	
7. Social relations	Social history	
8. Vocation	Vocational history	Vocational plans
9. Family relationships	Family history (including home and neighborhood)	

Suggestions for specific items ⁵ in the areas must of necessity be tentative. So many variables affect the nature of the information gathered — age, sex, type of problem, to mention but a few — that inevitably some irrelevant items are included and many relevant items are omitted. An attempt has been made to be inclusive rather than brief because many case studies made by teachers and other workers in schools come to erroneous or unsure conclusions owing to the omission of items crucial to understanding the case.

Steps in Making a Case Study. Case studies usually begin with certain identifying data. These include the child's name, address, age, sex, school, grade, nationality, color, and religion. Frequently too a very brief description of his physical appearance and a thumb-nail sketch of his personality are included. The purpose is to orient the reader or to recall that particular child to the writer of many case studies.

The next topic covered should be *the problem*, but after that the order of topics depends upon the specific case investigated.

1. *Problem. Present.* For what behavior is the child being studied? Obtain specific examples. In what situations does this behavior appear? How do others (parents, teachers, etc.) conceive his problem? *History:* When was this behavior first noticed? Under what circumstances did it originally appear? How has this behavior been handled?

(Frequently a most valuable clue to sources of the child's behavior may be found in the circumstances just preceding the initial manifestation.)

2. *Education. Present:* Obtain the results of most recent achievement tests. Obtain the most recent marks. What special proficiencies or deficiencies does he have? Have any diagnostic tests been given? What has been done for child's deficiencies? What is child's attitude toward school? Toward various teachers? Toward different subjects? What are his teachers' attitudes toward him? What is his status with his classmates? Is he ignored? Popular? Resented? What are his extracurricular activities? What is his attitude toward them? What is the relation between his home and the school? *History.* Obtain the record of child's previous marks and achievement test results. What was his age at entrance? Has he been accelerated or retarded? What was the character of his previous school adjustment? What other schools has he attended? *Future:* What are his educational plans?

(This material is primarily useful for the light it casts on frustrations in the school and for aid in determining to what extent, if any, the source of the difficulty lies in the school.)

3. *Intelligence Present:* Obtain the M.A. and I.Q. from his most recent individual test. How did he respond to the test? Were any clues to special abilities or disabilities revealed? *History:* What were the results of previous intelligence tests? Is there a discrepancy between the results of individual and group tests? *Future:* What mental level is he likely to achieve?

(The most obvious as well as the most important comparison to make is with his educational record and plans.)

4. *Health and physical condition. Present:* Obtain results of most recent medical examination. Does he have physical defects, sense organ deficiencies, glandular dysfunction, speech defects? What is his nutritional status? How does he compare with his age mates in size and strength? How does he compare with them in skill and games and sports? Is his sexual development accelerated or retarded? What is his attitude toward

his health and his body? Is he overcareful or careless about his health? Does he complain about his physical condition? *History:* Obtain full record of all illnesses, including duration and severity. Has he had convulsions, influenza, infantile paralysis, encephalitis, tuberculosis, epilepsy, or chorea? Did his illnesses affect his behavior? Has he had serious injuries? *Future:* Can any prediction be made as to his future health?

(This material should aid in answering the question to what extent, if at all, a physical condition may underlie his problem.)

5. *Development. Present:* Is his general level of maturity above, equal to, or below that of his age mates? *History:* Was the pregnancy normal? What was the nature of the delivery? Obtain the age at which weaning, teething occurred. At what age did child walk unassisted? At what age did he say his first word? Did interruptions occur in the development of walking and talking? At what age were bowel and bladder training started and finished? Were there special difficulties in establishing bowel or bladder control? Were there special difficulties connected with eating or sleeping? Did child show a gradual development of self-reliance?

(This material should be compared with intelligence test results and with the material on the origin of the problem.)

6. *Personality. Present.* Obtain results of most recent personality or adjustment test. Describe his present personality. Does he have outbursts of rage, fears? Is he aggressive, submissive, shy, or bold? Does he appear to be happy or unhappy? What strong likes or dislikes does he have? What are his fantasies, unfulfilled wishes, ambitions? What is his attitude toward himself, toward his abilities, accomplishments? Does he feel that he has a problem to solve? What is his attitude toward his parents, home, and siblings? Does he have a consistent positive or negative attitude toward adults? Does he frequently meet minor problems with evasion? *History:* What factors caused a change in his personality? What

persons have been most influential as ideals? How has he responded to specific failures and frustrations?

(Material on personality from different sources should be compared. One should remember that behavior may appear to be inconsistent but when the motivation is understood, its consistency becomes evident.)

7. *Social adjustment. Present:* Does he have few or many friends? How does he get along with his peers? What is their attitude toward him? Does he take the initiative in social contacts? What social groups does he prefer? Does he belong to an out-of-school club? What are his recreational interests? *History:* How did he adjust to other children when younger? Were companions available? Did he prefer to play with children younger, older, or about the same age as himself?

(This material should yield an adequate description of social adjustment with his peers.)

8. *Vocational status. Present:* Does he have a job after school? How much time does it take? What is he paid? Is he doing good work? Does he like his job? Do his parents approve of it? On what does he spend his money? *History:* What jobs has he had during previous summers or after school? Obtain the same information as about his present job. *Future:* What vocation does he plan to enter? Is this his own choice or that of his parents?

(This material is especially important for vocational guidance, for comparing behavior in another regulated environment with that in school, and for yielding clues as to the suitability of his vocational choice.)

9. *Family. Present:* What is the economic and cultural level of the family? What is the social standing? What is the nature of the marital adjustment? What are the parents' personalities like? Does one parent dominate the home? Determine parents' health, religion, educational level, vocational adjustment, nature of social life, and interests. What is the nature of the parents' attitudes toward the child? Is he overprotected, rejected, unfavored? What methods of discipline are used?

What attitude do the parents have toward child's schoolwork, behavior in school? Describe sibling relationships. Describe the home, including degree of crowding, sanitation, play equipment, orderliness. Describe the neighborhood, including social, economic, and cultural conditions, standards of behavior, recreational and social facilities.

(This material should enable one to judge whether the problem originated in the home, the school, or both. In this area one is especially likely to find background material that goes a long way to explain the child's behavior.)

Assembling the Case Study Materials. In schools the best procedure in starting a case study is to assemble the information already collected on the child. The cumulative record, if available, should be consulted first. Usually it is necessary to arrange for tests as the ones on file are not likely to be recent enough. If there is the slightest indication of a physical basis for the problem, a thorough medical examination should be made. The usual medical examination by the school physician is almost certain to be too superficial to be of much use. Interviews should usually be held with the parents, and the child should be observed in as many situations as can be arranged. Interviews with the child are essential as only through this means can one establish the type of relationship necessary for understanding the problem and aiding readjustment.

Reaching a Diagnosis. After the material considered pertinent is gathered, there must be an attempt to synthesize it by comparing the information in the different sections and interrelating it. The purpose is to make a diagnosis, which may be defined as a description of the maladjustment together with the causative factors in both the past and present. The process is exceedingly difficult; it frequently happens that even when the expert draws on all the psychological and social knowledge at his command he still finds that the case remains unexplained. Certainly the teacher in attempting a diagnosis must use the knowledge of his own motivation and his experi-

ence with others, taking what precautions he can against his own bias.

As a means of aiding the teacher in solving this difficult problem, the Department of Pupil Adjustment in the Des Moines Schools ⁶ and the Psychological Clinic of the Detroit Public Schools ⁷ have published objective case history outlines which incorporate systems of ratings by which each item in the case history may be assigned to a position on a five-point scale. Both scales appear to differentiate very well, on the basis of total score, between groups of problem and non-problem children and undoubtedly show to some extent the degree of seriousness of the maladjustments of different children. Nevertheless, neither scale can be considered the answer to the problem of case evaluation and diagnosis. In addition to the practical difficulty in assigning complex factors to positions on a scale and the inherent error of the automatic weighting of different areas by the number of items contained therein, such systems of rating cannot deal sufficiently well with the all-important interrelationship between the factors. Whether or not one of these systems of ratings is used, it is always helpful to summarize what appear to be the outstanding findings from the case study and to make a tentative plan for treatment.

Preventive Measures. All the methods of approach to understanding the child, discussed in this section, constitute at the same time an opening for the prevention of maladjustment. It is through such methods that the teacher can acquire the knowledge of the child's particular assets and liabilities and of the factors at the basis of his difficulty which are indispensable to the proper use of corrective procedures. General prescriptions for handling children's problems must be of limited value; only the person who understands the specific child can judge whether or not the suggested method of handling is wise or unwise.

THE ROLE OF THE TEACHER AND THE SPECIALISTS IN AIDING THE ADJUSTMENT AND READJUSTMENT OF THE CHILD

The teacher's role in the readjustment of the maladjusted school pupil must be more limited than that of the psychological counselor. This is no reflection on the teacher but is primarily a product of differences in training and of function. The counselor may be expected to have a better insight into his own motivation and problems as well as a more complete knowledge and understanding of the personalities of others. He is expected to have a much more extensive knowledge of diagnostic and treatment techniques and consequently a greater feeling of self-confidence in dealing with serious problems. Finally, he is expected to have more time for treatment through interviews than does the teacher. In general, the teacher, working unaided, limits himself to the less serious, more easily treatable maladjustments.

The psychological counselor has his limitations also. Usually he does not have time for sufficient observation of pupils in their everyday activities or for prolonged treatment of the children in need of it. Also, his knowledge of diagnostic and treatment techniques is almost inevitably less broad and deep than the combined knowledge of the psychiatrist, psychologist, pediatrician, and social worker who work together in a child guidance clinic. The middle range of problem difficulty would appear to be his province when working unaided.

THE EVALUATION OF THE SERIOUSNESS OF MALADJUSTMENTS

If it is advisable for the teacher to concern herself mainly with the less difficult maladjustments, the psychological counselor with those in the middle range of difficulty, and the child guidance clinic with the most serious ones, it becomes necessary to be able to evaluate the seriousness of maladjustments. This evaluation should be made on the basis of a complete case study and is best done by the assemblage of

teacher, principal, counselor, and other specialists known as the school case conference. Whether or not the case conference makes the decision, a number of factors must be taken into account before it can be wisely made.

Area and Duration of the Maladjustment. The first factor is that of *area*. To what extent does the maladjustment extend into the different spheres of the child's life? For example, if a child is timid at school while at home and in the community he is a normal, active youngster, the chances are great that the problem is relatively superficial and will respond well to treatment. If, on the other hand, the child is timid and fearful in all spheres of activity, the desired change in his personality will not be so easy to effect. A second factor is the *duration* of the maladjustment. In general, if a problem has only recently appeared, it is more easily dealt with than if it has existed for a long time. An exception to this generalization, however, may be the child who is subjected to a traumatic experience which results in a drastic change in his personality.

Resistance to Modification. Resistance to attempts at modification is a third factor. If apparently reasonable techniques of treatment in the past have not improved the child's adjustment, the problem is likely to be more serious than one in which treatment has produced some degree of favorable change. Subsidiary to this factor is the underlying attitude of the child toward a change in his situation. If his present problem along with its discomforts is nevertheless bringing him satisfactions which he is loathe to give up, the chances of improvement are poor. And if alternate sources of satisfaction are not available for the child, intense treatment is definitely indicated.

Depth and Nature of Symptoms. A fourth factor is that of *depth*. This refers to the intensity of the child's feelings. If he shows extreme hatred toward people or feelings of utter worthlessness and helplessness rather than a mild feeling of occasional resentment or inadequacy, he is likely to require

lengthy and intense treatment. One should also consider the *nature of the symptoms*. Some symptoms are not indicative of the degree of seriousness, but others — phobias, compulsions, panic states, or complete withdrawal from social contacts; and those based on epilepsy, juvenile paresis, encephalitis, or head trauma — betray the presence of grave maladjustments.

The Type of Treatment. A final factor is the *type of treatment apparently required*. Frequently, of course, this cannot be foretold with exactness. In general, one may say that maladjustments subject to environmental manipulation are less serious than those requiring a change in fundamental attitude on the part of the child or parents (*e.g.*, an attitude of rejection), or ones that require a combination of medical and psychiatric treatment.

The Province of the Teacher and Specialists in the Treatment of Maladjustments. The factors concerning maladjustments important to consider in evaluating seriousness, susceptibility to treatment and allocation to the province of the teacher, psychological counselor, or child guidance clinic may be summarized as follows.

	<i>Teacher</i>	<i>Psychological Counselor</i>	<i>Child Guidance Clinic</i>
Area	One or few	Few	Many
Duration	Short	Medium	Long-standing
Resistance	Slight	Fairly resistant	Quite resistant
Depth	Superficial	Moderate	Profound
Symptoms	Common	Less common	Neurotic or pre-psychotic
Treatment	Mainly environmental	Environmental and direct	Direct and medical

AIDING THE ADJUSTMENT AND READJUSTMENT OF THE CHILD

The teacher in a school lacking psychological counselors or other guidance workers can nevertheless do a great deal in aiding the adjustment and readjustment of the child. In the following section, certain suggestions will be made for dealing

with different types of problems. It should be stated at the outset, however, that many of the suggestions call for a careful application; they are not a substitute for treatment based on an intimate knowledge of the specific child involved.

Aiding the Physically Handicapped, Sickly, and Sensory Defective Child. As all these problems have a definite medical aspect, the first step should be an examination of the medical record. Then a program should be worked out in consultation with the parents and school or family physician. The program should endeavor to meet the needs of the child insofar as school facilities permit. The physically handicapped child often needs a lightened program, restricted activity, and additional rest as well as a type of attitude on the part of the teacher and pupils which avoids giving undue attention to his handicap. Large school systems often provide special schools or classes for such children, making provision at the same time for contact with normal children. Sickly children also are in special need of a regime worked out in collaboration with the parents and the physician. All children with suspected visual difficulties should first be given a visual examination. If the deficiency is corrected by glasses, the teacher should remember that, during the transition period between the discovery of the defect and the adjustment to the wearing of glasses, the child may feel sensitive. Children who are hard of hearing often require, in addition to being seated near the front center of the room and care on the part of the teacher to speak in a clear voice, special aid in bolstering their morale. Some ways of accomplishing this will be mentioned in connection with other problems.

Aiding the Gifted Child. When special schools or classes for the gifted are lacking, teachers may help the gifted child by means of moderate acceleration, if he is above average in size and social maturity, plus an enrichment of his school program. If he is small or immature socially, only an enrichment of the offerings of his regular class is advisable. Through a conference between the teacher and the gifted pupil, a joint

plan may be worked out which will allow him to do independent work at special times during the school day along the lines of his special interests. Conferences at stated intervals can be arranged for check-up and future guidance by the teacher. In the secondary school, the gifted pupil is perhaps less in need of special guidance than other pupils. From the standpoint of society, however, every effort should be made to foster both his intellectual and personality assets.

Aiding the Scholastically Handicapped Child.⁸ Despite the fact that dull children are more likely to have a smaller gap between ability and achievement than are children of average intelligence, many schools, as was pointed out in Chapter VIII, continue to push and urge the dull child to do better work. In the elementary school it is often advisable to reduce the level of expectation for these children and give them work better suited to their abilities and needs. Those with I.Q.'s below 70 or 75 often profit from special classes. In the high school a change in curriculum or in the number of courses will help.

For those with subject matter disabilities, arrangements should be made for remedial help, taking care that methods are followed which arouse his interest and do not embarrass him.⁹ Pupils with speech defects should be given individual help. If another school offers courses better suited for their needs, a transfer may be effected.

Aiding the Shy or Isolated Child. One must be careful not to push the shy or isolated child into social activities for which he is not prepared, as it may only increase his difficulties. Usually a gradual approach is necessary. One school has found that excellent results are obtained when the child's first classroom group includes only one other child. This companion is especially selected to be one who is socially inclined but somewhat submissive. Other schools have found it helpful to enlist the aid of the class leaders in making the shy child feel at ease with them and the other pupils. Later he may be encouraged to attend an extracurricular group having interests

similar to his. Tuition in special skills, as was pointed out in Chapter V, and utilization of special aptitudes may be helpful. Praise, when first used, should be confined to the child's product, because many shy children react poorly to commendation of their personal qualities.

Aiding the "Inferior" Child. Inferiority feelings may frequently be decreased markedly by giving the child class-
 mates whose accomplishment makes him feel important. Special arrangements may also be made for him to utilize and display any special abilities or talents he has, or it may be possible for him to receive special instruction to help him become unusually proficient in some motor skill, as was suggested in Chapter III. In general, the more opportunities he has for legitimately receiving attention and recognition by the teacher and his classmates, the less he will resort to annoying attention-getting behavior. Every encouragement should be given him in his own efforts to reach socially approved goals. The teacher's own praise, reassurance, and acknowledgment of his personal worth usually aid greatly.

Aiding the Adolescent Child. Many of the perplexities of adolescents may be greatly alleviated through one or more conferences with an emotionally mature teacher. During a private interview, which should be sought by the adolescent himself, a great deal can be accomplished through sympathetic listening alone. Information may be furnished him, or books may be suggested, on topics that frequently trouble adolescents, such as the influence of heredity or sexual behavior. The teacher may be able to give him reassurance on the normality of his physical growth or advise a visit to a physician who can relieve his doubts concerning the course of his physical development. Often, bright adolescents are troubled by their relation to the world, and discussion that appears aimless and wandering may be of great assistance to him in clarifying his thinking. The teacher, of course, must not try to influence the adolescent by putting forth his philosophy and beliefs as a model.

Aiding the Poverty-Stricken Child. Children from poverty-stricken homes frequently suffer from poor health and malnutrition. One of the first requirements is, therefore, a physical examination and an endeavor to meet his nutritional needs. Hunger often shows itself in school through irritability and malnutrition through apathy. Both conditions are aided by the provision of school lunches; in addition, some schools find it advisable to serve milk in the middle of the morning or even before classes begin. The problem presented by his clothing requires especially tactful handling. It is likely to be dirty, threadbare, ill-fitting, and, of course, a source of embarrassment to the child. Some teachers find a way to give decent clothing to a child's family without offense; others rely on social agencies. In any case, the possession of clothes which do not set the child apart from others is likely to make an immediate difference in his morale.

These measures, worthy though they be, are merely palliatives designed to make somewhat more bearable the plight of children who are the innocent victims of economic deficiencies in our society. The best school will have a difficult, sometimes an impossible task, in attempting to correct personality difficulties deeply rooted in conditions of poverty.

Aiding Children with Unfavorable Parent-Child Relationships. Rejected children constitute problems which are very likely to be beyond the scope of the teacher. Even child guidance clinics with expert staffs find these children to be most difficult to readjust, especially when both parents reject the child. The parents' attitudes in such cases are likely to be firmly embedded in their personalities. The best chance for improvement lies in intensive treatment; thus, if there is a child guidance clinic in the community, such children should be referred to it. If there is but one rejecting parent, it is sometimes possible for a teacher, through a judicious approach, to persuade the nonrejecting parent to be more affectionate with the child. The teacher himself, as was suggested in Chapter IV, may attempt to meet partially his need

for affection. Such measures sometimes help to improve the child's behavior.

Thoroughgoing overprotection is also a difficult condition for the teacher to cope with. With mild cases, the same techniques that succeed with the shy child are likely to be beneficial. A concurrent attempt to gain the parents' cooperation in granting the child more independence in his out-of-school life should be of value. In severe cases, referral to a child guidance clinic is usually indicated.

The child who is unfavored in the home is usually less resistant to the readjustive efforts of the teacher. Sometimes these children respond to techniques designed to bolster their self-esteem and individuality by coming to look on the school as a source of security, even if no change in parental attitude can be effected. Children from hypermoral or immoral homes are harder to help. The hypermoral parent is practically certain to be convinced of the correctness of his point of view and practices. The most the teacher is often able to do is to point out to the child, when unnecessary moral conflicts arise, that other people have different positions on the matter. It is obviously unwise to oppose the ideas of the parents. The immoral home is within the province of the family welfare agency rather than that of the school. If a referral to such an agency can be arranged, the child's plight may frequently be improved.

Reducing Classroom Friction. It is easy to see how the behavior of many maladjusted children is annoying and disturbing to the teacher and to the class. But when teachers respond to misbehavior by scolding, nagging, sarcastic remarks, ridiculing, shaming, forcing an apology, threatening, detention after school, assignment of extra work, lowering marks on subjects or tests, nonpromotion, demotion, or corporal punishment, they are likely to defeat their purpose by increasing the frequency of the undesirable activities.¹⁰ When one teacher, however, understands the child's problem and can interpret it to the others and gain their cooperation, a

definite improvement is frequently seen. At times it may be necessary for a teacher to suggest that a child be placed under the supervision of another teacher, for there are some children who, for unknown or unconscious reasons, are incompatible with certain adults.

Using Outside Agencies. Every teacher should know the resources in the community for aiding children. Not only should he acquire knowledge obtainable through annual reports and other descriptive literature, but he should also visit the agencies most likely to be serviceable. He should be well oriented to the services performed by family welfare and children's agencies as well as by child guidance clinics and health and recreational centers.

SUMMARY

1. Various techniques of approach to a better understanding of the individual child are available to the teacher.

2. Adjustment schedules, despite their imperfections, may be used for (1) identifying some of the children in need of special guidance, (2) uncovering unsuspected personal problems, (3) getting clues to the factors underlying the maladjustment, and (4) confirming a suspected maladjustment.

3. Observation may be used to advantage in understanding the child's personality-in-action in everyday situations.

4. Information from parents may be of great value in understanding the background of the child and the extra-school influences on his personality development.

5. Conferences with the pupil afford insight into his feelings and attitudes and establish the relationship necessary for further work with him

6. The cumulative record affords a picture of the child's assets and liabilities as well as leads for further investigation.

7. The case study is the most comprehensive of all methods. It is best employed in the case of maladjusted children who cannot otherwise be easily diagnosed and treated.

8. The teacher's role in aiding adjustment and readjust-

ment in a school which has the services of a psychological counselor and access to a child guidance clinic is best restricted to cases which: (1) involve few areas in the child's life; (2) are of short duration; (3) have previously been responsive to treatment; (4) are of relatively superficial depth; (5) include only frequently encountered symptoms; and (6) are likely to respond to environmental treatment.

9 In the absence of a psychological counselor and child guidance clinic, a teacher may frequently improve the adjustment of children who are physically handicapped, sickly, sensory defective, gifted, scholastically handicapped, shy or isolated, "inferior," and poverty-stricken. He may also aid in the adjustment and readjustment of the adolescent child and child unfavored by his parents. He is likely to find rejected, overprotected, and seriously delinquent children as well as children who come from hypermoral or immoral homes beyond his scope.

10. A great deal of classroom friction can be reduced by the use of proper methods, and difficult cases may be greatly benefited by referral to the appropriate outside agency.

QUESTIONS AND EXERCISES

- 1 "If adjustment schedules cannot accurately assess the degree of adjustment of every member of a class, they should not be used in the school." Discuss the merits and demerits of this statement.
- 2 How may the teacher improve his technique of observation?
3. What information is it helpful for the teacher to have before making contact with the parents of a child?
- 4 What sources of friction should the teacher be aware of in dealing with the parents of a maladjusted child?
- 5 Why is it necessary to maintain an objective-sympathetic attitude in interviews with the maladjusted child?
6. What are the values and limitations of the cumulative record?
7. How practical is it to demand that teachers make case studies of all the pupils in the class?
8. Criticize the section on evaluation of the seriousness of maladjustments. Could you suggest better criteria?

9. In an attempt to aid the readjustment of the maladjusted pupil should the teacher disregard the interests of the rest of the class
10. What additional suggestions can you make for aiding the adjustment of children who have the types of difficulties discussed?

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CHAPTER XXI

The Mental Health of the Teacher

Much of the material presented in the last three chapters has a direct or indirect bearing on the mental health of the teacher. The strength, if any, of his hereditary predisposition to mental disorder; the nature of his bodily constitution; the type of experience furnished him by the family, community, and school during childhood; even the extent of his understanding of the pupils and the methods he uses in aiding children with their personality and behavior difficulties influence his mental health. The types of frustration he meets in his daily life and the efficacy of the methods of tension reduction he uses also have a great deal to do with his present adjustment.

In this chapter, we shall first consider the *teacher as an adult* who is affected like any other adult by the satisfactions and frustrations embedded in the American culture. A description of characteristics typical of different life phases will be presented in order to afford the teacher a basis for comparison with his own life. The special problems which the unmarried man and woman must face will be dealt with separately because of the greater difficulty of their adjustment problems. We shall then turn to a consideration of the factors conducive to mental health and sources of frustration specifically connected with the teaching profession, and finally to ways of improving the mental health of teachers.

THE TEACHER AS ADULT

The Effect of the American Culture on Mental Health.
The naive belief that mental health is independent of the

nature of the social order and the culture is slowly dying. Becker has stated, " . . . successful adaptation to life implies a successful and well adapted social order; nothing can be more fallacious than the interpretation of mental health in strictly individualistic terms. Positive mental health is but the personal aspect of a society in which personal and social values are in right relation to each other and are attainable by everyone within the limits of his biological capacities." ¹

It is unnecessary to describe in detail the great variety of satisfactions inherent in the American culture today. The undisputed fact that very few inhabitants of the United States who are intimately familiar with other countries would willingly live elsewhere is sufficient testimony to the relative wealth of satisfactions existing here. The lack of rigidity in customs found in many parts of the United States allows for the expression of a wide variety of individual preferences. The great number of socially useful occupations allows vast numbers to achieve great satisfaction in the service of mankind. The unexcelled educational opportunities, the relative fluidity of class lines, and the strong democratic tradition are among the chief conditions which tend to provide a mentally healthful environment.

On the other hand, the fact that our culture contains many imperfections cannot be overlooked. Watson calls attention to the fact that "Many of the conflicts experienced by children, adolescents, and adults as personal and individual, have their origin in a social order which has not yet been planned with human welfare as a primary consideration." ²

The Effect of Contradictory Values on Mental Health.
One of the best statements concerning the contradictory values inherent in our society which increase the difficulty of adjustment is made by Horney:

The first contradiction to be mentioned is that between competition and success on the one hand and brotherly love and humility on the other. On the one hand everything is done to spur us to success, which means that we must be not only assertive but aggressive,

able to push others out of the way. On the other hand we are deeply imbued with Christian ideals which declare that it is selfish to want anything for ourselves, that we should be humble, turn the other cheek, be yielding.

The second contradiction is that between the stimulation of our needs and our factual frustrations in satisfying them. For economic reasons needs are constantly being stimulated in our culture by such means as advertisements, "conspicuous consumption," the ideal of "keeping up with the Joneses." For the great majority, however, the actual fulfillment of these needs is closely restricted. The psychic consequence for the individual is a constant discrepancy between his desires and their fulfillment.

Another contradiction exists between the alleged freedom of the individual and all his factual limitations. The individual is told by society that he is free, independent, can decide his life according to his own free will; "the great game of life" is open to him, and he can get what he wants if he is efficient and energetic. In actual fact, for the majority of people all these possibilities are limited. What has been said facetiously of the impossibility of choosing one's parents can well be extended to life in general — choosing and succeeding in an occupation, choosing ways of recreation, choosing a mate. The result for the individual is a wavering between a feeling of boundless power in determining his own fate and a feeling of entire helplessness.³

The first contradiction mentioned by Horney applies to some extent to everyone; the second and third affect most profoundly those in the lower economic groups.

To her list of culturally imposed conflicts must be added two more, whose effect on mental health is important. First there is the still predominant cultural attitude toward sex which refuses to concede the normality of strong sexual feelings in the young unmarried person but expects the wedding ceremony to remove the previously acquired inhibitions and ensure, immediately and permanently, satisfactory marital relations. Second, the conflict between the American doctrine of social equality and the practice of discrimination against certain races and minority groups condemns millions of individuals to an overlarge share of frustration in life.

In general, teachers face many of these culturally embedded

handicaps to good adjustment to much the same degree as other adults of similar socio-economic status. Some may not have suffered these conflicts personally, but most teachers are in a position to observe human relationships constantly, to recognize discrimination, and to suffer vicariously with those whose adjustment is made more difficult by such handicaps. On the other hand, the teacher has an unusual opportunity both to aid in the alleviation of personal conflicts in pupils and to assist in community enlightenment.

Characteristics Typical of Different Life Phases. The problems of adjustment for the individual teacher tend to vary in the course of the years as the teacher enters new life phases. The discussion of this topic and of those immediately following is based chiefly upon an analysis of 200 life histories made by Charlotte Buhler and reported along with cognate studies by E. Frankel.⁴ *As the majority of the subjects were middle class and professional people*, it affords material which has a definite bearing on the lives of teachers. The extensive data collated by Elliott⁵ are also drawn upon.

The first phase — the years of childhood. Buhler divides the life span into five phases. Since the years of childhood, which constitute the first phase, have been treated at some length in Chapters II to VI, it will not be discussed further here. We shall proceed with the second phase.

Second phase — ages fifteen to thirty. This period is characterized by great increases in growth, ability, strength, and vitality. It combines preparation for and an active but tentative step out into independent living; the dominant attitude being forward-looking and exploratory. Self-chosen and independent activities are entered into, and interests tend to center around sports, travel, literature, philosophy, art, and religion. The peak of the sex urge is reached, and heterosexual interest increases until it reaches its culmination in marriage. Great satisfaction is gained through engaging in a variety of interesting activities and in increasing proficiencies of many kinds. Both problems and satisfactions center around (1) emanci-

pation from the home, (2) achievement in school and vocation, (3) finding a way to live a socially significant life, (4) social relations with peers and adults, (5) heterosexual adjustment, and (6) acquiring an adult status.

Third phase — ages thirty to forty-five. This is the culmination period of life, usually the most fruitful in professional and creative work. A certain stability is desired which is fulfilled through settling down and staying in one place, making the final choice of vocation and working hard in it. For both husband and wife, responsibilities are increased and social activities are at their height; the affectional needs are fulfilled mainly by the spouse and children, and emotional ties with the parents become definitely weaker. The man's self-esteem is largely bound up with his progress in his vocation and the woman's with the career of her husband, the development of her children, climbing the social ladder, and with her own career, if any.

The married woman who has centered her life around the family routine with the consequent neglect of outside interests may find the latter part of this period very trying. She may come to realize that her previously latent desire to be recognized as a person is unlikely to be satisfied; thus she feels keenly the lack of a career. As a result she may unduly prolong the period of protective care of her children. The married woman with a career, even though she gains satisfaction from being recognized as a person in her own right, often is distressed by the conflicting demands on her time and energy caused by the dual responsibility.

Fourth phase — ages forty-five to sixty. Biologically, this period marks the beginning of regressive growth, when no further regeneration of cells occurs and injurious cell changes are likely to increase. Health problems become more frequent, and many in this group become physically impaired to some degree. The man's work usually involves just as many activities and frequently greater responsibility, but he tends to decrease the number of his other activities. This is the period

when the man is most likely to look with an overly critical eye at himself and his life. Because of the cultural overvaluation of attaining preeminence, he is likely to find that his degree of success and income are disappointing. Men in rapidly changing occupations are likely to find it difficult to keep abreast of the advancing knowledge required, and they may feel keenly the competition of younger men.

Women usually go through the climacteric during the first part of this period, although it comes to some as early as age thirty-five. For many women at this time, the emotional threshold is lowered with a consequent increase in emotional outbursts and tears. Often there is a feeling of tension, a vague yearning, moodiness and depressions. Such feelings are not a necessary accompaniment of the menopause, however. Women who realize that the glandular changes do not affect their femininity and who are treated with consideration by others may find the period not unusually difficult.

During this period both husband and wife must loosen the affectional bonds with their children and see them leave the home. The satisfaction in observing the progress of their children still remains, however, and the coming of grandchildren increases their pleasure. Although long-held goals are likely to diminish in attractiveness, great pleasure is gained from a revival of interests characteristic of the second phase.

Many succeed in reaching a true fruition in this period. They have lost their previous insecurity and fear through many years of successful coping with life's problems and have become serene and confident in their expectation of life's future rewards. Their greatest satisfactions come from their friendships and from their services to others.

Fifth phase — age sixty and over. Although the inevitable restriction of activities, more frequent physical illness, and weakening of the body which characterize this period involve rather difficult adjustments in themselves, the difficulties are increased by the fact that the social order has made little

provision either for the welfare or proper utilization of the abilities of people in this phase. Vast numbers of persons during this period are capable of giving excellent advice and guidance to younger people, but their services are not frequently sought. Younger people are likely to undervalue their capacities just as they themselves undervalued the abilities of their adolescent children. Near the end of the period they desire a quiet life where they can cultivate their hobbies and avocational pursuits, reminisce, have visits with their children, and give advice and consolation.

Special Problems of the Unmarried Man. The number of unmarried men of marriageable age in the United States is unknown. The 1930 census listed thirty-four per cent of males over the age of fifteen as unmarried, but this figure is hard to interpret. The bachelor's life is not all problems, of course; his status even yields him certain advantages over his married compeer. He is barred from few occupations for lack of a wife and is preferred in some. He can devote his financial resources mainly to himself and is able to indulge in more of the gratifications that money will buy than is the married man.

The maintenance of social relationships usually constitutes a major problem in his life. As he grows older and year by year more of his friends become married he may find himself becoming a "fifth wheel" at social affairs. In an effort to increase his social contacts, he frequently joins new clubs and organizations and becomes an active member in all. He is likely to make a real effort to retain the friendships he has already established. He is also likely to envy the friends who married interesting and attractive girls and wonders whether he should not have married (or regrets that he did not keep trying after being turned down). But by the age of forty or so, he is likely to have become rather inflexible in his manner of life, and the realization that marriage would involve many changes in his habits tends to reinforce his original motive for remaining single.

*The sexual problem of the unmarried man is extremely difficult to solve since there is no socially sanctioned means of releasing sexual tension, and whatever solution he finds is likely to be an inadequate substitute for married life. Too few extensive studies have been made on the sex life of the older unmarried man. The data gathered by Peck and Wells⁶ on two large groups of college graduates, men whose average age was twenty-three, showed percentages of seventy-four and eighty-two who had employed masturbation and thirty-five and thirty-seven who had engaged in heterosexual relations. Achilles⁷ found percentages of sixty-four who had employed masturbation and forty-eight who had engaged in heterosexual relations in a small group of male university extension class students whose average age was twenty-two.

Although there are no statistics available, it is known that some men are able to reduce sexual tension through sublimatory activities. However, as was pointed out in Chapter XVIII, sublimation alone does not constitute a complete solution to the problem. The diminishing intensity of the sex urge after about age twenty-five, however, does make the problem of the older unmarried man less acute.

Special Problems of the Unmarried Woman. According to the 1930 census, twenty-six per cent of females over the age of fifteen were unmarried. Among women teachers the percentage is higher. The latest figures available⁸ (for 1930-31) show fifty-five per cent of senior high, sixty per cent of junior high, and seventy per cent of elementary school teachers to be single. The adjustment problems of the unmarried woman are, of course, more difficult to solve than those of the single man. It is usually assumed that the bachelor made a voluntary choice of single blessedness, but such an assumption is less readily made in the case of the single woman. This is likely to have a somewhat depressing effect on the woman's self-esteem.

One of the frequent problems of single women is the maintenance of friendly relations with men. Because she is likely

to feel more keenly the cultural overvaluation of men, and to appreciate more fully the sex discrimination still lingering in the mores, she may tend to reject the feminine role and enter into excessive competition with men.

The single woman who pushes sex and maternal interests into the background and concentrates all her energies on her job may merely postpone coping with a life problem. Around the age of thirty to forty she may find herself in a situation which parallels that of the married woman who has neglected and postponed her desire to be recognized as a person. While the wife and mother longs for a career, the unmarried woman who has made a success of her vocational life is likely to long for marriage. She realizes that her chances to marry (she had perhaps always felt she would get around to marriage in time) are diminishing rapidly and that the biological possibility for motherhood may soon be lost. Consequently she may feel more than usually inadequate and lonely, and her love needs, because of her previous neglect, may assume an exaggerated value.

The sexual problem of the unmarried woman is complicated by the fact that there is a close tie between her affectional and sexual needs. Because of this tie, the mere physiological release of tension is less completely satisfying to her than to the man. Davis⁹ made an extensive study of the problem in single women five years or more out of college whose average age was thirty-seven. She found that sixty per cent admitted the practice of masturbation, eleven per cent heterosexual relations, and eighteen per cent homosexual relations.

As in the case of the unmarried man, none of these attempted solutions can be guaranteed to afford an adequate substitute for married life. The confluence of the affectional and sexual needs, however, make it easier for the woman to utilize the various forms of partial release discussed in Chapter XVIII under the heading of sublimation. The establishment of a close permanent friendship with a single woman of similar age and interests affords a fairly adequate solution for many.

•It should, of course, not be assumed that marriage solves all of a woman's problems and adds none of importance. Many unmarried women are, in general, very happy and well adjusted, and many married women are not. Either status produces sources of satisfaction and security as well as specific problems and difficulties. It is the purpose of this chapter to consider primarily the latter.

THE TEACHER AS TEACHER

In discussing the mental health of the teacher as a member of the teaching profession, we shall not be concerned with (1) women teachers who enter the profession as a stop-gap until marriage with a consequent lack of real interest in their jobs, (2) those who have no real affection for, or interest in, children but who drift into teaching because of a chance vocational opportunity, (3) those who desire a job in which a minimum of effort is expected and who have the mistaken impression that teaching fulfills that requirement. We shall be concerned with those who have a warm interest in children and in the profession. Even among these, however, we must recognize that great individual differences exist in suitability for the work. Before the teacher steps into his first classroom his personality has been affected for better or worse by the factors discussed previously. In addition to influences from the past, however, the satisfactions and frustrations he finds in his specific job will raise or depress his general level of happiness and efficiency.

ASPECTS OF TEACHING CONDUCTIVE TO MENTAL HEALTH

The following aspects of teaching are listed in a recent National Education Association research bulletin as conducive to mental health. " . . . teaching: (1) is socially useful work, (2) involves a continuous series of challenging new problems, (3) encourages creativeness, (4) provides opportunity for self-analysis, (5) stimulates broad interests, (6) requires an unusual

amount of self-control, (7) affords an unexcelled opportunity for growth, and, generally speaking, (8) is done amid surroundings that are relatively pleasant and comfortable.”¹⁰ Bagley and Keith,¹¹ after mentioning some of the same items, call attention to the beneficial effect on the teacher of the buoyancy, hope, and enthusiasm of youth and to the sense of personal significance engendered by being in a position to influence public policy through the presentation of well-considered statements on community, state, and national issues.

Perhaps all experienced teachers would agree that most if not all the aspects mentioned are definitely positive factors in providing a satisfying and fruitful vocational life. There might be a possible objection to the inclusion of advantages (2) and (6) in the National Education Association list. “A continuous series of challenging new problems” will in most instances stimulate and liven the teaching process, yet if they be too challenging they may overwhelm the teacher. That teaching “requires an unusual amount of self-control” no one would gainsay, but there is a real question as to whether the demands of the situation result in the development of a better integrated personality or whether the constant expenditure of energy necessary for keeping calm so much of the time is not a slightly disintegrating factor. It may well be that this aspect of the work increases the teacher’s need for restorative and recreational activities outside of school hours.

The Social Significance of Teaching. Perhaps the greatest satisfaction in teaching comes from the knowledge of the socially significant character of the work. Few occupations afford such a genuine opportunity for influencing the lives of individuals in such a favorable and wholesome way. Perhaps there is no occupation more fundamental to the very structure and functioning of our democratic society, through its effect on the knowledge, information, and attitudes of the future adult citizenry.

The Opportunity for Merging One’s Interests with Those of the Group. Another satisfaction, allied to the first,

results from the ease with which the teacher can merge his interests with those of his group of pupils. To work for the interests of others in an unselfish and effective way brings a type of complete satisfaction which pursuits ministering directly to the self-interest of the teacher cannot duplicate.

Creativity, Stimulation of Interests, and Opportunity for Growth. The creativity, the stimulation of broad interests, and the opportunity for growth afforded by teaching are aspects which can hardly be separated. When teaching is compared with the skilled trades, the reality of these factors becomes immediately evident. It is true that many carpenters, for example, can fulfill to some extent their creative desires, but opportunities for the development of broad interests and growth are hardly an integral part of the job itself. Nor does teaching suffer in comparison with the professions of law, engineering, medicine, or even the ministry.

Affection, Self-Esteem, and Independence. Teachers have many opportunities for developing wholesome affectionate relationships with their pupils. By this is not meant the selection of a "teacher's pet" or the lavishing of affection on children; but rather the warm sympathetic mutual regard which is a positive mental health influence on both teacher and pupils. Self-esteem is favorably affected by the respect and admiration of pupils and parents, perhaps reaching a high point when former students return for a visit. The knowledge of doing a good job is, in itself, a favorable factor in the maintenance of self-esteem. The independence in choice of methods for the presentation of material, and the knowledge that one is not a mere cog in a machine, are also sources of great satisfaction.

There are a host of specific satisfactions which cannot even be mentioned in this summary treatment of the topic. The list might include the pleasure of observing a pupil successfully meeting a problem, the joy in the evidence of an alert appreciation of ideas, and be extended almost indefinitely. But teaching, of course, is not entirely a succession of triumphs

and unalloyed pleasure; it has its darker aspects as well. These will now be discussed with an indication wherever possible of the frequency with which the condition is met. Unfortunately, there are a good many points upon which statistical data are not yet available, and where it is necessary to substitute the opinions of authorities.

SOURCES OF FRUSTRATION IN TEACHING

According to a recent research bulletin of the National Education Association, the following factors contribute to the personal maladjustment of the teacher: “. . . (1) overpressure of required work, (2) underpay, (3) insecurity of tenure, (4) constant sharing of the burdens of others, (5) puritanic restrictions on out-of-school activities, (6) repressive, autocratic administration and supervision, (7) aloofness on the part of the general public, (8) necessary attention to numerous details, and (9) the constant association with immature minds.”¹²

Pressure of Required Work and Attention to Numerous Details. Many adults, particularly those who have had little recent experience with children or classrooms, think that teaching is an easy life. According to McAndrew “Editors, salesmen, business women, everybody look at our short hours, Saturdays off, long vacations, pleasant surroundings, and stable tenure, with a smile for every bid to pity the down-trodden teacher.”¹³

As if in answer to this statement, Bagley and Keith say, “The actual work of teaching, it is true, involves relatively short hours as compared with some other occupations, but both the short day and the short week are more than counter-balanced by two other factors: (1) the need of constant, relentless, unremitting concentration throughout the school day; and (2) the multiplicity of necessary tasks and duties that can be accomplished only outside of school hours.”¹⁴ According to Averill, “. . . the invariable routine of lesson planning, problem construction, motivation of work, judg-

ment of performance, diagnoses of weaknesses, application of remedial instruction, and integration of the various parts of the program into a coherent and related whole, is a taxing responsibility which every teacher assumes when she becomes the leader of forty-odd children. . . ." ¹⁵

The significance of this factor in tending to produce mental ill health in the teacher depends to a great extent on how great is the pressure in the specific school and classroom. No one can say without knowledge of the concrete situation, but that overpressure is fairly widespread is indicated by the finding of the Commonwealth Teacher Training Study ¹⁶ that teachers must perform 1001 separate tasks in discharging their functions. Another source of evidence is found in what the teachers themselves think about the heaviness of their duties. Approximately forty per cent of elementary school teachers and forty-seven per cent of high school teachers consider their total professional loads as "*unduly heavy or extreme.*" ¹⁷ Even when some exaggeration is allowed for, it would seem that it is not uncommon for teachers to be overburdened with work. These findings are also in agreement with those of Peck, ¹⁸ who asked 100 teachers attending summer school to mention in an unsigned statement the conditions of teaching which they felt to be sources of maladjustment in their own lives. Heavy teaching load was mentioned by forty-nine per cent, the highest percentage found in the study.

Inadequate Salaries. According to Elsbree, teachers' salaries have been gradually and rather steadily rising since 1890. From 1890 to 1937, the rise in "real wages," that is, income in terms of the amount of goods and services money will buy, has increased from an index figure of 100 to one of 143. ¹⁹ In 1913 the classroom teacher's average yearly income was only \$500, by 1930 it had reached \$1400, then slid back during the depression years to \$1200. By 1940 it was \$1360, almost up to the 1930 level. ²⁰ Despite the encouraging rising trend, the average salary is far below a figure consistent with the responsibilities of the teacher and makes a striking contrast

to the *minimum* salary of \$2000 which is paid to those in the lowest professional grade in the classified service of the federal government ²¹

Of course, national averages cannot reveal the range of salaries received. Teachers in large urban communities are on the whole fairly well paid; in 1940-41 they received in cities of over 100,000 population an average of \$2227 for kindergarten teaching and an average of \$2768 for high school work.²² The general average for urban teachers was \$1900 in 1940, but the rural teacher received only \$830 on the average ²³ Some states pay their rural teachers and those in small towns almost unbelievably low salaries. In recent years, five states paid such teachers average salaries ranging from \$573 in the lowest to \$731 in the highest ²⁴ In one state, white teachers were obliged to spend an average of \$23 more than they earned in teaching, while Negro teachers, whose salaries were still lower, found it necessary to spend \$7 per month in addition to their teaching income.²⁵

The conclusion from these figures must be that hundreds of thousands of teachers are unable to save for emergencies or for retirement, large numbers must constantly engage in a series of petty economies, and some are in actual want. Not only does this situation keep highly desirable young people from entering the profession, it also subjects thousands of teachers to worry and strain. In the thirty-three states which have state-wide retirement or pension plans, or in the sixty-five local systems which have provisions for retirement,²⁶ the teacher's worry over providing for her inactive years is eliminated or reduced, especially in communities which have provisions for tenure as well.

Occupational Insecurity. Although encouraging progress has been made in the extension of tenure through legislation, the latest available data indicate that only six states have state-wide laws which grant permanent or indefinite tenure, and this after probationary periods ranging up to five years. In ten states, certain districts grant permanent tenure, and

thirteen other states have provisions for long-term contracts.²⁷ For the teaching group as a whole, these data mean that, as of 1937-38, "Less than a third . . . are afforded definite tenure protection after a probationary period. . . . Two in every five have absolutely no legislative protection in their positions except perhaps the meager security afforded by an annual election contract."²⁸

Even tenure laws do not afford iron-clad protection. According to Prescott, "In many communities tenure laws are evaded by discharging all teachers about to enter tenure, employing new teachers in their places, and forcing the former ones to move elsewhere. In other communities teachers about to go on tenure are forced to resign, thus forfeiting their tenure rights. After several months of idleness, these teachers may be re-employed in the same system — but they remain without job security. Some communities hire new teachers only as substitutes, thus avoiding both tenure and salary regulations."²⁹ And after reviewing the wording of present-day tenure laws and discussing instances in which loopholes were found in them, Beale concludes "the best of tenure laws, then, protect against political interference and administrative vindictiveness if there are an aroused public opinion and a powerfully organized teaching group to support it, but alone it is a slim reed on which to lean."³⁰

In the previous discussion, there was an implicit assumption that permanent tenure was conducive to the better mental health of teachers. There are objections to tenure, however; the main ones are that it unduly decreases the powers of superintendents and that it makes it too difficult to dismiss incompetent teachers. On the other hand, proponents of tenure list the following arguments, many of which have direct implications for mental health.

- 1 Tenure prevents the political control of schools and teaching positions

- 2 It prevents the discharge of teachers for political, religious, personal, or other unjust reasons.

3. Tenure adds stability to the teaching staff, greatly reducing the rate of turnover in teaching positions
- 4 It permits teachers to devote themselves to the practice of their profession without fear or favor
- 5 It encourages competent and public-spirited teachers to remain in the profession
6. It discourages school management based on fear and intimidation
7. It enables teachers to support and defend the school administration before the public
- 8 It protects teachers in their efforts to secure well-financed and adequate educational opportunities for children
- 9 It stimulates professional growth and in-service training
10. It helps to make possible a balanced, well-managed life ³¹

There is a great need for carefully controlled scientific studies of the effect of tenure on the mental health of the teacher. The principles of mental hygiene appear to require it, but the necessity for tenure has yet to be conclusively proved. A recent study made in Indiana, which has had a tenure law since 1927, affords perhaps the best evidence yet produced. The investigator concludes, "This inquiry would seem to indicate that in Indiana the benefits . . . [of the tenure law] have outweighed the detriments. It would also seem to show that on the whole superintendents are not handicapped in their work by tenure. It would appear also that most teachers respond professionally to increased freedom and to protection from lay and school board interference and domination." ³²

Restrictions on Outside Activities. According to a recent yearbook of the Department of Classroom Teachers,

One of the most vicious circumstances associated with teaching is the high wall of *puritanic and unnatural restrictions* on personal and academic freedom which so often hedge it about. By contractual agreement or the pressure of public sentiment the teacher often is denied the right to manage her own strictly personal affairs. In some cases she must avoid all friendships except with persons of her own sex. Sometimes she must buy her clothes from certain local stores. She is required to teach a Sunday School class and contribute

to every charity. She must associate with certain people in the community, but not with others. She must hold the "right" opinions on controversial questions and, without campaigning in any election, quietly vote the "right" ticket. She must not recommend books by certain authors, not indeed withdraw certain books from the public library. It is unsafe to entertain any idea not generally accepted in the community. Above all, she must not marry, for if she does, her job is gone. No convincing evidence has ever been offered to show that married women are less efficient after marriage than before. Neither has anyone explained why normal family ties are less important for teachers than for other individuals. Yet, the fact remains that most women teachers must choose between marriage and teaching. In the present *Questionnaire Study*, one third of the 3067 unmarried teachers who cooperated, expressed dissatisfaction, disappointment, and unhappiness because they were not married. Again and again, denial of the right to marry is mentioned by mental health specialists as one of the serious defects of the present teaching situation. The result of this restriction, and of every other discriminatory and unnatural limitation imposed on teachers, is almost certain to be fear, subserviency, deceptiveness, and embitterment — attitudes diametrically opposed to mental health.³³

Evidence in support of many of these statements is found in a number of recent studies. Hanson and Umstadtd in their study of 210 Minnesota communities discovered that eighty per cent barred married women from employment, two-thirds barred teachers who smoked, and a few communities (six) even rejected teachers who danced.³⁴ Cooke and Simms present data to show that married women are employed as teachers in less than half of the cities in the United States of over 100,000 population and in less than one-fifth of the cities of between 30,000 and 100,000. Although nearly seventy per cent of the ninety-three largest cities employ married teachers, there is increasing discrimination against them in the smaller communities. In 1928, 32.6 per cent of women teachers were married, in 1931, 23.8 per cent, and in 1938 only 19.7 per cent.³⁵

The attitudes of 326 Ohio school board members toward a number of personal activities of teachers were ascertained by Cook and Almack. It was found that the board members

would on the whole be willing to employ a teacher who drove his own car and who "dated a town person or another teacher." They were almost equally divided on the wisdom of permitting a teacher to leave the area over weekends, but the preponderant sentiment was against many of the practices of ordinary citizens. For example, the majority disapproved of a single teacher's (1) living in an apartment, (2) smoking in private and especially in public, (3) not attending church, and (4) dancing at a public dance. In every instance, it was felt that it was worse for the woman teacher to do such things than it was for a man.

These investigators also inquired into the nature of the response to community restrictions on the part of 2870 teachers who were asked to fill out an appropriate questionnaire. They found that the majority (54.4 per cent) habitually accepted the restrictions of their communities, 13.9 per cent tried to educate the community toward greater tolerance, 12.1 per cent did not answer the question, and 9.9 per cent conformed unwillingly. Only 3.3 per cent sought to evade or escape the conduct controls, and 1.3 per cent had protested about them.³⁶

That unnecessary restrictions, aside from the marriage barrier, are not confined to the two states mentioned is evidenced by Greenhoe's study based on a representative national sample of teachers. She states, "Findings indicate that community concern may readily go beyond the bounds of common sense and necessity. . . ." ³⁷

The Lack of Acceptance by the Public. The adults in the community do not readily accept the teacher as one of them. Some welcome the opportunity of "talking back" to the teacher, while others assume a patronizing air. Still others are somewhat in awe of the teacher and tend to keep all relationships with him on a formal basis. Invitations to the homes of parents in the community are seldom extended on the basis of interest in the teacher as an individual but because he is "Junior's teacher."

Similarly Greenhoe believes that the teacher's psychological status in the community is very similar to that of the stranger.

The stranger is said to be *in* the community but not *of* it, he is a part of its mode of life, and yet he is distinct from its way of living. It is this detachment which gives to him the objectivity for which he is justly noted. Teachers are indeed strangers in the community where they teach. The novice discovers this fact in many ways, and the experienced teacher grows increasingly aware of the barrier between himself or herself and the mine-run of school patrons and dwellers in the town. The teacher is a teacher, somehow different, and better than ordinary persons, yet the exact nature of the teacher's prestige has never been made known through scientific study and may be readily overestimated.³⁸

Autocratic Administration and Supervision. It is difficult to estimate the proportion of schools in which autocratic administration is practiced, although it would appear that it is the rule rather than the exception. Anderson states, "An authoritarian concept of school management and teaching is widely accepted and practiced in institutions that prepare teachers and in elementary and secondary schools."³⁹ Although Prescott does not indicate the extent of autocratic procedures, he believes, "There are still too many administrators who are at least semi-dictators and too many supervisors who feel offended if a teacher develops procedures of her own instead of following closely the supervisor's techniques. Teachers are still frightened by some principals and still try to give the "right" answer in teachers' meetings instead of freely entering a discussion. Many teachers are still afraid to ask help on their more difficult problems because they are afraid to admit they have such problems — it might affect their ratings."⁴⁰

The results of such administration and supervision are a lack of creativeness, a frustration of the need for independence, and a diminution of self-esteem. It creates especial difficulties in adjustment for the young teacher who, anxious to put into practice the newer educational methods, finds that variations are not permitted.

Other Frustrations. The professional load of teachers is sufficiently great, as has been indicated, to create a strong need for recreation. Yet many communities are without facilities. The results of Peck's study in which twenty-four per cent of the teachers felt the absence of recreational facilities to be a source of maladjustment in their own lives ⁴¹ is in agreement with Prescott's listing of inadequate time and facilities for recreation as a major unmet need of teachers.⁴² The lack of desirable living arrangements, congenial associates, and adequate equipment for teaching are all felt by a sizeable proportion of teachers.

Concluding Remarks. Lest it be forgotten that the sources of frustration just discussed do not affect all public school teachers and that the average teacher cannot be considered a downtrodden drudge who cannot call his soul his own, let us recapitulate some of the more favorable aspects of the conditions just described. Teachers do have weekends free of classroom work and long vacations for recuperation. The salaries of many teachers, particularly those in the larger cities, allow for a reasonably pleasant existence. The majority of states have state-wide retirement plans. At least a third of the teachers are reasonably secure by law in their jobs as long as they maintain their competence, and many more have actual though not legal tenure. Compared to non-teaching vocations, the amount of occupational security is already greater.

The vast majority of women teachers in the larger cities at the present time are permitted to marry, and there is hope that the increasing trend of discrimination against married women teachers in the smaller communities will be reversed. Again, a good share of teachers, particularly in larger communities, do not suffer from undue restriction on their personal lives or on their rights as citizens. Many teachers are highly respected in their communities and are considered on a par with doctors, lawyers, ministers, and other professional people. It is the minority of teachers not the majority who suffer from

lack of desirable living arrangements, congenial associates, and adequate equipment

There are strong forces working toward democratization of administration. Even at the present time, according to Prescott, many school administrations are truly democratic.

In many cases this relationship [that maintained by supervisors and administrators to the teaching personnel] is an admirable one. Teachers participate in the development of curricula, they have freedom to vary procedures in accordance with the needs and interests of pupils and to take advantage of significant happenings in the community or the world. Teachers working under such conditions are not mere artisans applying automatically the rule of thumb techniques which they have learned — they can be real artists shaping the personalities of their pupils through every classroom happening. They have a sense of personal worth, of the significance of the roles which they are playing in the lives of their pupils. Under these conditions, teaching becomes a profession and a satisfactory occupation for fulfilling the . . . [personality] needs of the teacher.⁴³

WAYS OF IMPROVING THE MENTAL HEALTH OF THE TEACHER

Improvement of the Conditions of Teaching. Some of the conditions conducive to the maladjustment in teachers stem from the cost of education. Inadequate salaries, insufficient clerical help resulting in a multiplicity of routine details, lack of recreational facilities, inadequate equipment in the schools, and lack of universality in retirement and pension systems — all have their roots in considerations of expense. The individual teacher is not the effective unit for securing community understanding of the need for larger appropriations to improve these conditions. Nor can he expect, single-handed, to democratize autocratic administration, institute tenure legislation, or change those cultural attitudes which result in unjust restrictions upon his personal life. Prescott suggests.

The best defense that teachers can have against their present vulnerability probably lies in the direction of the permeation of the

teaching staff by a more genuinely professional feeling, implemented by strong professional organizations. Physicians treating the most baffling cases do not feel this weakness nor show signs of the resultant "inferiority feeling." They have a strong association to defend them. Apparently, teachers need to strengthen greatly their professional associations, to develop in these associations techniques and facilities for educating the public regarding the obligations and rights of members of the profession ⁴⁴

Elsbree, in speaking of groups whose aim is to reduce teachers' salary scales, states:

For teachers to sit idly by like Pontius Pilate and wash their hands of the whole matter would be to sacrifice professional standards which have taken decades to achieve and which over a period of years are closely related to the welfare of children . . . To protect the interests of the service to which they have consecrated their lives is not a selfish objective . . . teachers . . . through their associations should protect their members against unjust salary practices and should employ pressure methods when necessary to defend a just cause ⁴⁵

Although local and state associations can be very effective in improving conditions in their localities, a national group or groups are needed to demand and get Congressional legislation which will effectively tend to equalize the tremendous disparity among the states in their ability to pay for an adequate educational system. Until this is accomplished, many states will be unable to increase to any great extent their educational expenditures.

Improving the Mental Health of Prospective Teachers. Although the methods to be described in the subsequent section will be for the most part applicable to the prospective as well as to the practicing teacher, certain methods are more suitably employed before entrance into the profession. Nearly all authorities are agreed that improvement could be made in the selection by teacher training institutions of students with better physical and mental health. Effective and practical means for accomplishing this result are, however, difficult to find. Adjustment schedules, of course, are

not serviceable for this purpose and, indeed, have actually failed in institutions which have attempted to use them. The personal interview may be effective when employed by a sensitive and competent individual but even then there is a reluctance to bar individuals on such subjective grounds. The Rorschach test, described in Chapter XX, might be a very effective instrument, but its use would entail considerable expense.

In the preservice training, more and better courses should be offered in mental hygiene. Students typically like such courses and many gain a great deal of insight through them. If, in addition, enough psychological counselors or psychotherapists and medical services could be provided in all teacher training institutions, great strides could be made in increasing the mental health of the profession.

How the Teacher Can Improve His Own Mental Health.

Can reading about methods of improving his mental health help an individual in doing so? To quote Leeper, "the best answer can be gotten if we consider the analogous question: Can books teach a person how to swim? Probably no one has ever learned to swim merely by studying books on how to do it. No matter how complete a book on swimming may be, getting into the water calls for additional learning. . . . To learn how to swim, one needs a combination of theoretical analysis of how it should be done and of actual practice. This is the answer then. . . . Books can help one to see possible ways of doing things, and books can call attention to one's faults of technique."⁴⁶ Of course, to some extent what help a person gets depends upon the soundness and practicality of the books he reads. Many books will tell one to (1) develop the habit of success, (2) face reality, (3) react normally to emotional situations, and (4) avoid worry. These are unquestionably most desirable goals, but unfortunately most books either indicate their means of achievement so vaguely that it is too hard to find the way, or suggest, in effect, that one should grasp himself firmly by the boot-straps

and lift. Some suggest a series of tricks such as autosuggestion — “Every day in every way I am getting better and better”; other books seek to inspire an individual with a fine flush of renewed vigor and hope — “The seeds of success are within you, you have but to move ahead.” In the final analysis, tricks and inspiration are not likely to do very much good because they seldom have any permanent effect. Occasionally a person may find a somewhat helpful suggestion, and in any case they are likely to be harmless.

Let us recognize at the start that improving the mental health unaided is not easy; some modification can often be made, but the basic structure of the personality is not likely to be altered. Psychoanalysts sometimes spend years of daily sessions in an attempt to alter certain personality trends in an individual and still do not always succeed. Even minor changes are often difficult to effect; sometimes a little annoying quirk has a root buried deep in the yesterdays and, like quack grass, is immune to surface treatment. On the other hand, the root may be almost ready to fall out of its own accord, and a slight twist of the wrist will bring it forth; another will consign it to oblivion. It is often difficult to tell what the result will be until the attempt is made.

Developing insight. There are many half-truths which pretend to be principles of mental hygiene. One is that “it is morbid to introspect”, that to try to analyze one’s own motivation and behavior results in depression. It is true that many people in reading a list of symptoms of neurosis find most of them in themselves and are likely to feel somewhat “blue” about their prospects of “achieving normality.” But that is because neurotic feelings are exaggerations of the normal and few individuals have sufficient comprehension of “normal” feelings to be able to appraise correctly their own subjective states. To be sure, the true neurotic suffers more than the normal, even though the latter thinks he has the same number of symptoms. Even though occasional “blue” periods may occur, self-analysis is not permanently depressing. If it is not

in itself the product of some deeper lying source of difficulty, it is very likely to have constructive results.

There are a number of ways of increasing self-insight, some of which have been suggested in previous chapters. Often it is helpful to try to discover which methods of tension reduction one uses and then to consider whether one is getting full value from them. It is possible, after such consideration, to decrease or increase the extent to which one uses those of which one has become aware or even to change the character of the method. For example, it may be possible to change from a socially disapproved to a socially approved form of compensation. It is often helpful to analyze one's fantasies or daydreams. By the expenditure of a slight effort in noting the content of repeated fantasies, one may be able to articulate important but unrecognized needs. After the needs are out in the open this way, it may be possible to devise means of achieving in reality the goals previously fantasied.

Many people find it helpful to pay particular attention to the circumstances under which they react with strong emotion. At first glance the emotion may seem to be a natural and inevitable resultant of the situation, but analysis of such episodes will often reveal emotionally charged feelings concerning aspects of the individual's personality of which he is unaware. In the same way, strong negative feelings toward another person should be examined. In this case, checking one's feelings with others is usually of crucial importance. If it is found that the feeling is not shared by others, it is worth while to seek to discover the reason. Sometimes a careful search will reveal a resemblance to someone who has been a source of mistreatment in the past. When such a discovery is made, the feeling may disappear. Even if it does not, however, one can with a clear conscience avoid unnecessary future contacts with the person.

An objective analysis of the frustrations and satisfactions in one's vocational and private life is frequently helpful. An effort to decide which frustrations must be borne and which

one can work to eliminate often pays good dividends. Due respect must be paid to the half-truth that "what happens to you is far less important than your attitude toward the event." This dictum, as usually interpreted, means that the nature of events in one's life can be sharply separated from one's attitudes and feelings about them. Of course that is not true. Failure cannot give the same glow of pleasure that success does "if one only has the right attitude." On the other hand, failures are often not such great disasters as they seem at the time.

Accepting oneself. If an individual accepts himself it means that he is not continually engaged in self-improvement; that he is not continually castigating himself with his failures and weaknesses; that he is willing to allow himself some latitude in behavior and feelings. The first step in accepting oneself is a continuation of self-analysis. When a teacher tries to formulate his goals and examine them in relation to his abilities, he will in all probability find that the goals are much higher than he can possibly reach. Teachers are likely to suffer from inordinately high goals because (1) they are likely to base them on a composite of the best qualities of others, (2) their childhood has often been one of striving to meet their parents' overhigh expectations, which they have, in part at least, accepted, and (3) they are in a profession in which evaluation of success is extremely difficult, and, because of their training in childhood, are more likely to underestimate than overestimate the quality of their work.

After defining the nature and height of one's goals, an attempt should be made to lower those which are too high and to decide on those aspects of one's personality and abilities which are to be left alone. This is a very difficult thing to do, but the examination process may furnish the first fairly true grasp of what one was attempting (without success) to do. It often helps to use as a criterion, "*What can I conveniently achieve?*"

As has been indicated in previous chapters, most people are

not continuously kind, thoughtful, generous, self-abnegating, and pure in heart. Everyone feels mean, envious, hurt, angry, rebellious, self-centered, and lustful at times. When a person really tries, it is not so hard for him to admit it to himself. If an individual has done something unusually "shameful," it often helps to try to discover the source of the impulse, and, whether or not he can find it, telling a trusted friend about it often helps. If too many of one's actions and feelings appear unbelievably bad, it is wise to consult an expert. One can be sure he is familiar with even guiltier people.

A great aid toward feeling comfortable with oneself is to substitute for individualistic aims the welfare of humanity. It may be enough to identify oneself so completely with the welfare of one's pupils as to achieve the submergence of the self. Usually, however, it is helpful to have, in addition, some adult group or organization, whether it be religious, charitable, or whatever, to whose aims one can be devoted and for which one can whole-heartedly work. In this way, without directly seeking them, the precious feeling of "belonging" and the sense of significance in one's life can be achieved.

Actions to take. (1) Get a physical examination. See your doctor and your dentist, and get whatever repairs your body requires. (2) Find out the recreational facilities in your community. You may have overlooked some. Recreation will afford an opportunity not only for relaxation but for congeniality as well. (3) Join an organization of teachers. Select at least one local and one national organization whose aims, program, democratic functioning and methods appeal to you as offering a constructive attack on the improvement of teaching conditions. Be an active member. (4) Keep your friends and use them. If you have only one or two friends, a few more won't hurt, but quality is more important than quantity. Complete self-sufficiency is an unhygienic goal. Help your friends and give them the opportunity of helping you. Use one of your friends as a confidant, but it is unnecessary to bare your whole soul to him. Use discretion. (5) Express

your hostile feelings. Let off a little steam directly once in a while. Seek and try out means which constitute socially useful or harmless forms of indirect expression. (6) Make a plan for yourself. Decide what changes you will make in your life and how you are going to accomplish them. Don't be too ambitious. Start in easily. (7) Don't be afraid to consult an expert about your troubles. He will probably be the most understanding and helpful person you have ever known.

A few tricks. As was previously mentioned, a trick is occasionally useful, depending on how good it is and on whether it fits the particular case. Here are a few tricks which some people have found useful. When you have just suffered a blow to your self-esteem, try deliberately to do something you know you will enjoy, preferably something that has previously bolstered your self-esteem. If you have a difficult and fearsome experience ahead of you, for example, your first speech before a large group, don't keep telling yourself that you will *not* have stage fright. Concentrate on the worthwhileness of the things you have to say. When the frustrations of life seem greatly to outweigh the satisfactions, tell yourself (what really is true) "Even this shall pass away." Many women profit a great deal through "a good cry." Don't be afraid to let yourself go in this way occasionally, but, of course, it is inadvisable in public. Forcing yourself to face a distasteful situation is frequently unnecessary. Occasionally it has to be done. It generally turns out to be not half as bad as one expected.

SUMMARY

The mental health of an individual is dependent to some extent upon the satisfactions and frustrations inherent in the culture and social order. Among the variety of satisfactions inherent in the American culture are: (1) lack of rigidity in customs, (2) vast numbers of socially useful occupations, (3) unexcelled educational opportunities, (4) rela-

the fluidity of class lines, and (5) most important of all, the strong democratic tradition. Among the major contradictions embedded in the American culture are: (1) competition and success versus brotherly love and humility, (2) stimulation of needs versus frustrations in satisfying them, (3) alleged freedom versus factual limitations, (4) puritanic attitude toward sex versus strength of the sex urge, (5) doctrine of social equality versus practice of discrimination.

The nature of adjustment problems depends to some extent on the phase of life. After the childhood years the second phase of life is characterized by great vitality, exploratory activities, and a forward-looking attitude, the third phase is characterized by "settling down," a strong interest in family and social life, and the greatest contribution in vocational life. The fourth phase includes the beginning of regressive growth, overly critical "stock taking" by men and the climacteric in women; the fifth phase usually requires a restriction of activities because of increasing physical weakness. The most troublesome adjustment problems of the unmarried man and woman stem from the difficulties in (1) maintaining satisfactory social relationships and (2) meeting the sexual and affectional needs.

Important sources of satisfaction in teaching arise from (1) the socially useful character of the work, (2) the creative expression involved, (3) the stimulation of broad interests, (4) personal growth, (5) the opportunity for association with youth, (6) the opportunity to influence public policy, (7) the merging of one's interests with those of the group, (8) the partial satisfaction of the needs for affection, independence, and for maintaining the self-esteem. Important sources of frustration in teaching arise from (1) the heavy pressure of required work, (2) inadequate salaries, (3) occupational insecurity, (4) restrictions on outside activities, (5) the lack of acceptance by the public, (6) autocratic administration and supervision.

To improve the mental health of the teacher it is necessary

to improve the conditions of teaching. This can best be effected by means of strong professional organizations. It is also necessary to improve the selection of students for teachers colleges and provide psychological counseling and medical services for them during their years of training. The teacher can improve his own mental health if he is able to increase his understanding of himself, accept himself largely as he is, and take an active part in directing his life rather than being content with responding to pressures.

QUESTIONS AND EXERCISES

1. It has been suggested that "mens sana in societate sana" be substituted for the motto "mens sana in corpore sano." Do you think such a new emphasis necessary or advisable? Explain.
2. Are the contradictory cultural values mentioned characteristic of all societies? Why not? Are any of them changing at the present time?
3. List as many ways as you can in which teaching affords an opportunity for growth.
4. Take the list of personality needs in Ch. XVIII and try to estimate the extent to which they are fulfilled in the life of the average teacher. Do the same for the organic needs.
5. What arguments may be advanced which are favorable to and opposed to the employment of married women teachers?
6. School board members were found to favor certain restrictions on the personal lives of teachers. Can you find any data which indicate that school board members are more liberal, about the same, or more conservative concerning such matters than the community as a whole?
7. What can teachers do to bring educational expenditures up to a point more in line with the educational needs of a democracy?
8. Outline an ideal plan for the democratization of administration in the elementary and secondary schools. What groups should have a voice in a democratically organized school? What functions should each group have?
9. What is the basis for the common belief that self-analysis is unwise? What are some of the limitations of self-analysis?
10. Why is it so difficult for individuals to accept themselves as they are? How can self-acceptance be distinguished from smugness?

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